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ABSTRACT

The eight papers in this collection were presented at five sections of the Division of Management and Technology: (1) "The State Conservation Programme (Concept Approach)" (Tamara Burtseva and Zinaida Dvoriashina, USSR); (2) "La communication a distance de banques d'images pour le grand public (Public Access to Image Databases via Telecommunications)" (Luce-Marie Albiges, France); (3) "Electronic Document Delivery and Libraries: Technologies, Strategies, and Issues" (Leigh Swain and Gary Cleveland, Canada); (4) "The Beilstein Institute Facsimile Project" (Reinhard Ecker, Germany); (5) "Spatial Development and Disposition of Services of the State Lenin Library of the USSR" (V. V. Timokhina); (6) "Principles of Functional Library Building Planning" (David Kaser, USA); (7) "Performance Assessment: Today's Confusion, Tomorrow's Solutions?" (Alan MacDougall, UK); and (8) "Status, Image and Reputation of Librarianship: Results of an Empirical Study" (Hans Prins, Netherlands). (MAB)

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BOOKLET 6

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Tamara Burtseva, Chief of the department of restoration of library collections,
and
Zinaida Dvoriashina, Chief of the research laboratory on conservation of documents, Lenin State Library of the USSR, Moscow, USSR

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The State Conservation Programme (Concept Approach)

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and

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Libraries, museums, archives and collections hold rich collections of manuscript and printed monuments of domestic and world culture. In most cases they have been established as special collections, which are actively used for scientific purposes and for the spiritual needs of readers. Not a single branch of national economy, science or culture can develop without many-sided study, generalization and utilization of experience of the past. The information potential of society represents extremely important strategic resources, which ensure its further economic and intellectual progress.

The revealing of the content of collections of manuscripts and rare books, and the introduction of them into scientific circulation is realized through the description of entire collections and through printed and card catalogs, the union catalogs, first of all. The work of libraries involved with the gathering, control, usage and preservation of book rarities is more and morely frequently being coordinated with the activities of other institutions (museums, archives) and social organizations (Soviet Cultural Foundation, All-Union Book-Lovers Society, Society of Preservation of Monuments of History and Culture). The activities of the largest Soviet libraries in this field are conducted in keeping with the IFLA Medium-Term Programme. Progressive domestic experience and the experience of other countries in work, connected with book monuments, becomes the property of the country's library community.

The main objective of activities, involved with book monuments, always was and remains their preservation in the interest of the present and future generations. However problems of storage, conservation and restoration of monuments of culture and library collections have become so sophisticated today that the conventional organization of this ancient branch of culture fails to meet present- day requirements. Environment changes inexorably with every year. The atmosphere of big cities, filled with the effluviums of harmful chemical substances accelerates the natural ageing of documents. Library specialists from the major countries of the world with unconcealed anxiety write about the enormous amount of deficient literature, which is stacked in depositories of world repute. In this connection, the majority of developed countries have begun from the sixties to carry out substantial investments and create modern systems of air cleaning and neutralization of stocks. This work is conducted within the framework of national programme for the preservation of library collections, which have been developed on the basis of the international IFLA programme "Preservation and Conservation".

In our country the State programme for preservation of library collections on a governmental level has not yet been approved. However, the Decree of the President of the USSR of April 13, 1991 was published with the aim of cardinally improving the conservation of the national printed and manuscript heritage, and the ensuring of its availability for wide circles of readers. The Cabinet of Ministers of the USSR and the Academy of Sciences, together with the governments of the Republics and other interested institutions, have been commissioned to map out the State programme for the conservation of collections of books and manuscripts for 1991. This programme will become the basis for coordinated actions of the Union Republics. Moreover, each Republic, region and library are given the opportunity to develop and realize their own programmes with due regard for the specificity of national and historical features. Kazakhstan, the Ukraine, the State Lenin Library, the All-Union State Library of Foreign Literature, and the Saltykov-Shchedrin State Public Library (Leningrad) have already started to work on their programmes. For example, the "Spadchyna" ("Heritage") Programme, directed toward the preservation and usage of the national historical heritage, is being developed in Byelorussia. The programme of the formatiom, conservation and usage of manuscript and printed monuments, which is being developed by the State Library jointly with other libraries, museums, archives, the Book-Lover Society, the Byelorussian Division of the Soviet Cultural Foundation, the societies and sections of bibliophiles and collectors of bookplates, religious communities, and individual collectors of books, will be presented as an independent section in the "Spadchyna" Programme. The Saltykov-Shchedrin State Public Library has already worked out a long-term programme. The Programme covers eight lines of activity, with prerogatives of responsibility for each line of action:

1. The ensuring of normative conditions of storage and regulation systems. The averting of accidents and catastrophes.
2. Organization of storage, processing, control and maintenance of documents.

3. Expertise of conservation. The establishing of different forms of conservation. The assessment of the socio-cultural and economic expediency of work and expenditure.

4. The carry and storage of information on film carriers.

5. The translation and storage of information on plastic carriers (magnetic video-disks).

6. Protection (different stages) through partial conservation, book-binding, use of slipcases, boxes and other containers.

7. Stabilization and restoration of originals, primary information carriers (stabilization with the help of antioxidants, biocides, incapsulation).

8. Provision of the Centre with a computer system: a data bank dealing with all lines of activity.

The activities, which will make up the core of the future programme, are being realized under the auspices of the All-Union Library Council. On the basis of the decisions of its Plenum "The role of libraries in the gathering, conservation and usage of book monuments of history and culture" (January 12-13, 1989) an interdepartmental group for the development of the State programme for preservation of documentary monuments has been set up. The main objectives of the Programme are: the preservation of the collection of documentary monuments in the interests of the present and future generations; the singling out at this stage of the problem of conservation, giving it to priority; the approach to this problem as to a task of State importance; the conception of the object of the ensuring of preservation as of a social need and of an original guarantor of the successful implementation by libraries of tasks involved with the gathering and issue to users of information sources. The problem of ensuring the preservation of documents is today a very complex one, there are many approaches to it and it cannot be solved through the efforts of a single library, archives or another similar institutions, regardless of how large it is. We need to attract the attention of statesmen and public figures, the wide community, scholars, the representatives of the Supreme Soviet and the local Soviets of People's Deputies to problems of preservation of our intellectual treasures.

The Working Group has already received some suggestions from different libraries of the country for inclusion into the State programme and a draft of the concept and structure of the programme have already been prepared on their basis.

The main points of the draft of the Programme are:

1. Assessment of the state of collections. Certification.

This section of the Programme will contain data on the state of collections of documentary monuments, which will be produced and generalized through questionnaires, examination of depositories and the reports of libraries. The Working Group has prepared and mailed to the libraries of the country a special questionnaire dealing with the state of collections of manuscript and printed monuments of history and culture. The questionnaire includes the following questions:

1. Designation of the library (organization)

2. Address

3. Telephone number

4. Conditions of storage of stocks

   4.1. Air-conditioning systems

   4.2. Obligatory ventilation

   4.3. Non-regulated ventilation

5. Load capacity of the depository

   5.1 Area, occupied by the collection of manuscripts and rare books

   5.2 Normative capacity (the norm of the capacity of shelves in square meters for manuscripts is 6 boxes and for rare books — 40 volumes)

   5.3 Supernormative loading

6. Characterization of manuscript and printed monuments of history and culture

   6.1 prior to the 11th century

   6.2 from the 11th to the 15th centuries

   6.3 from the 15th to the mid 19th centuries

   6.4 from the mid 19th century to our time.

   6.5 unique samples

   Total: '

Answers were received from 170 libraries of the country. A report dealing with the assurance of

conservation of manuscript and printed monuments of history and culture, kept in the State archives of the USSR was prepared. The acquired information will make it possible to develop a complex of arrangements (or measures) for the improvement of conservation of documentary monuments. An absolutely new approach to the preservation of library stocks will be established. The principle of conservation, i.e. the stopping of the process of destruction itself, the taking of measures for the removal of reasons which have a negative influence on the preservation of documents, will become the leading one. The protection of documents from decay must be realized from the moment of designing of the library building. It was suggested that questions, connected with the improvement of designing, building and reconstruction of depositories of archives, libraries and museums and of buildings for laboratories and other structures, connected with the conservation, restoration and copying of documents, be included into the Programme. There was also a suggestion dealing with correction of the existing designs and the working out of new type designs for buildings for archives and libraries. It was suggested that in type and individual designing, the experience in the exploitation of the existing buildings and the advanced experience of foreign countries, be taken into account.

In order to effeciently protect and rationally use our national heritage, we must know where the collections are kept and be aware of their state. That is why the proposals of the State Library of Byelorussia, the State Libraries of Moldova and Kazakhstan, the files on the certification of collections of book monuments, without which it is impossible to estimate the degree of management of the national library collection, merit particular attention. The reception of profound analytical data on the most important library and archives collections represents a significant component of certification. We are faced with the necessity of developing criteria of assessment for movable monuments. We should also theoretically develop and methodologically realize the concept of certification so that it would also include data on the physical state of the collections, which are mainly determined by the state of the book collections and conditions of their storage. Certification will permit the working out of top-priority and long-term plans of restoration work.

II. Support of normative conditions of storage, rescue of collections in extreme situations

It is necessary to ensure the observance of normative preservation of documents, and this is identified as the main role of library or archives. Normative preservation is interpreted as the degree of changeability of documents, which is envisaged in the normatives, the State standard — GOST 7.50-90 "Conservation of documents. General requirements", first of all. This standard establishes uniform and scientifically substantiated norms of the storage regime, of technical processes of stabilization and restoration of documents intended for permanent storage.

In order to ensure the normative preservation of documents it is necessary: to allot isolated rooms in libraries and depositories, which would be available only for the keepers; to strictly observe the norms of storage of documents in a given areas; the depositories should be provided with special equipment air conditioners, humidifiers and dehumidifiers, systems of plenum-exhaust ventilation with filters for purification of air and for the removal from it of harmful gaseous impurities and bactericidal filters; registration equipment, operating in the automatic mode; electronic devices for the measuring of temperature and humidity (pocket-size), fire-alarms and protective signalling.

To arrangements of the storage regime pertains mycological and entomological control, which includes the observation of the state of depositories of documents, the detection of subjects capable of causing damage to the stocks. Libraries should also be provided with fire-fighting equipment. It should also have a plan of actions for cases of emergency and a store of equipment and materials, which are necessary for the removal of the consequences of accidents.

III. Research in the field of conservation of documents

A prominent place in the Programme will be given to the development of R and D in the sphere of facilities, methods, materials and new technologies of conservation of documents, archived through the efforts of laboratories of libraries and archives and the participation of researchers from specialized institutes and laboratories.

Up till now we have accumulated a substantial amount of scientific developments and it is becoming more and more evident that the time to create a reliable foundation for pragmatic works has come. We must build up a substantial theoretical base, a thing which can be done through centralization and creation of large research centres in Moscow, Leningrad and in different other regions. This will make it possible to set up working groups according to the themes they will be concerned with and assure better provision of libraries with equipment and material. The main advantage here will be the opportunity to use the instrumental base as fully as possible since duplication of efforts and the purchase of the same equipment by different institutions and its idle time will be done away with. Along with this, the concentration of scientific efforts will remove a certain parallelism in scientific activities, which has become marked in recent years because many libraries have set themselves the goal of creating research laboratories in addition to the existing divisions (sectors) for restoration, and some of them have already begun to do it.

Today the most urgent task is identified with the ordering of the general financing of research and of the system of payment of scientific workers. This measure will permit the centres to hire highly qualified researchers and avoid fluctuation of manpower.

We intend to speed up the introduction of scientific developments into the practice of document conservation. In order to achieve this we must establish a special service, which would engage in the training of restorers. Along with this, it is necessary to set up a design office and experimental workshop since some studies have been completed and contain the suggestion to create special equipment for restoration work, a suggestion which cannot today be realized.

Among the cardinal points, which should be reflected in the State programme, is the question of provision of library workers with current information on the R and D in the field of new methods of conservation and restoration. The time has come for new resources, i.e. information, which is the only product that does not diminish with time, on the contrary its volume increases every day. Quick introduction of results of scientific developments into practical document conservation will become possible only when we create a widely available and open data bank dealing with the activities of libraries and other organizations of the USSR in the field of conservation and restoration of library collections. Among proposals, coming from the libraries, is a recommendation to create a centre of information on questions of conservation of library collections on the base of the SIl, which would disseminate not only the accumulated professional experience, but the appropriate literature, reviews and bibliography concerned with the achievements of the USSR and foreign countries in this field.

IV. Sstabilization

One of the sections of the Programme is connected with the development of methods of mass neutralization of documents. As is generally known, many current publications are put out on paper, which fail to possess the necessary store of initial strength and resistance to wear. When the libraries have a vast amount of documents printed on fragile paper this problem can be solved only if they work out new approaches to the problem of preservation of intellectual riches of each library and of all the libraries taken together.

The extremely important problem, involved with the development of methods of mass neutralization, cannot be solved in a short time or in the nearest future, either. In prospect we must work at the establishing of the most suitable technology for neutralization, which would guarantee full harmlessness for all materials of the book, an ecologically clean technology, which would be safe for people in the further usage by them of the documents, a technology, which would justify financial, labour and material expenditures. This technology should not be too sophisticated, should be of the kind that can be exploited in all libraries, regardless of their type. Of course, this problem can be solved only with the help of distinguished specialists in the field of chemistry and synthesis of polymers, and specialists in the fields of biological damage, prognostication of the longevity of paper, and toxicology.

V. Restoration

An important line of work in the preservation of library collections is their restoration. However, the volume of restoration activities is limited even in large libraries; the gap between the demand for restoration and its actual realization is constantly growing. Many large libraries see the solution of the problem of increasing the productivity of restoration operations in their mecanization and today different aspects of mechanized methods are being intensively developed. However technical means must not be considered to be the panacea in restoration. While recognizing the significance of some achievements in this field, we must be prudent since extreme enthusiasm and an unprofessional level of restoration can bring more harm than benefit. The treatment of old documents with modern materials gives rise to the problem of diligent expertise. That is why the training of a sufficient number of highly qualified restorers is viewed as a priority.

VI. Training of personnel

The development and expansion of work connected with the preservation of documentary monuments will call for the support of qualified specialists, who would be capable of performing the entire complex of operations, involved with the conservation of documents.

At present the Institute for the raising of professional skills under the USSR Ministry of Culture, organizes monthly courses for the training of restorers, once every five years. The courses function on the base of the SLL; their programme was jointly prepared by the Institute and the Division for Restoration and the Research Laboratory of the State Lenin Library. The Division for Restoration admits employees of libraries, archives and museums for training. It admits persons, who wish to receive the necessary "know how" in the field of restoration.

At the discussion of the draft of the programme, concerned with the training of the restorers, which took place at an open session of the Interdepartmental Working Group, it was noted that the structure and content of training of personnel and the raising of their professional skills need to be thoroughly reorganized. The following negative features in the conventional system of training were pointed out:

1. The period of instruction of trainees is usually 2 weeks, at best it is 4 weeks. It is expected that they will master their trade within this period. Here we must not forget that within a month the

students are expected to imbibe ethic and aesthetic standards and principles since they represent the guarantee of the high quality of the restorer's work.

2. The fact that the students do not know even the fundamentals of chemistry, materials science, book printing, and binding, makes it more difficult for them to grasp the principles of restoration.

3. The groups of students differ greatly in the number of students and their educational level, factors which impede the normal learning process.

It is suggested that the existing practice be changed. We hold, that initial training should be organized through the system of secondary and higher educational institutions. The individual method of teaching should be used only in advanced training such as the raising of professional skills and the teaching of particularly difficult methods.

The groups should be staffed according to the following principle: elementary education and the raising of professional skills, restoration of documents printed on paper or the restoration of binding. Methodological aids, which shall contain a historical outline of the written language and of book printing, general principles of restoration, history and practice, sources recommended for individual study should be available. On receiving applications from people, the head-quarters of the courses will mail the curriculum and a methodological manual to them in order that the student start studying prior to his coming to the SLL. Before being admitted to the courses, the student will be interviewed and after finishing the courses he will have to take an examination.

Along with the organization of teaching and training of restorers, the problem of the increase of the staff of restorers in libraries and archives will also have to be solved.

The Programme envisages the organization of a permanently working scientific and practical seminar for restorers of different categories on the basis of the Research Centre for Restoration of the SLL. These seminars will be headed by leading specialists from different organizations. The seminar will become a permanent platform for the discussion of important scientific and pragmatic questions.

VII. The material and technical base

Scientific and technical progress in conservation and preservation to a large degree depends on the availability of high quality materials, instruments, and technological equipment.The Vernadsky Central Research Library of the Ukrainian Academy of Sciences and other libraries have suggested that the point dealing with the radical re-equipment of the material and technical base of storage, conservation and restoration, and the reprography of monuments be included into the Programme as a top-priority question. Type models of technical equipment for restoration services, will be developed in the course of preparation of the Programme. Among other things, which will be accomplished at that time, are: the gathering and generalization of data on modern domestic and foreign technical means; the establishment of the terms and price of the developments, the ministries responsible for the development and the organization- manufacturers; the price of serial samples, the total costs of the realization of the Programme. Questions connected with the organization of production and centralized supply of libraries with small-sized sets of instruments for restoration and binding operations are being discussed. Some arrangements are being made with the Central Research Institute for Paper, which envisages the production of special paper for restoration work.

VIII. Management of the process

The libraries, which participate in the development of the Programmes (Vernadsky CRL, State Public Library for Science and Technology of the Siberian Division of USSR Academy of Scienses, State Library of Kazakhstan, V.I.Lenin State LIbrary of Byelorussia, etc.) have put forward the suggestion that the question of organization of regional (Republican, inter-Republican) research and restoration centres be included into the Programme. It is envisaged that these centres will work with documentary monuments, assure their control, practical conservation and restoration, consultation and methodological aid, training and retraining of specialists engaged in research. These centres will also perform the functions of regional depositories of insurance copies and organize on their base the production of copies- reproductions of monuments by orders of depositories, which hold the originals. Today art-restoration centres are effeciently operating in Moscow, Lithuania and Estonia. The Library of the USSR Academy of Sciences has the status of the All-Union Interdepartmental research and methodological centre for the libraries of the USSR AS and libraries of the Academies of the Union republics conferred upon it. It is planned to create a centre in the Ukraine on the base of the Central Research Library of the Ukrainian Academy of Sciences. A resolution concerning the establishment of the Centre for the restoration of publications in the State Library of Lithuania has been passed.

It has now become quite obvious that it will be possible to solve all problems of conservation of documents at the present stage of development, to extend R and D, and cope with organizational and pragmatic issues only on the condition that the Research Centre for Conservation of Documents be set up. We presume that it will be created on the base of the SLL. The structure of the Centre will include the following components; a laboratory of chemical, physical and biological research; a laboratory of climatology; sector of theory and methodology with teams for the study and dissemination of progressive experience, scientifico-technical information and translations, training of restorers, the raising of

their professional skills, the certification of restorers, sector for conservation and restoration of library collections; groups of incoming control, examination and control of the state of the stocks; disinfection and disinsectization. The structure also envisage the setting up of a group for paid services offered to external organizations.

The creation of this Centre will make it possible: to unite the efforts of scientific workers and restorers of Moscow libraries; to accelerate, spread and introduce new methods of conservation and restoration; to unite specialists, working in different subject fields, and create scientific groups, which will help to develop the most important themes, directed toward the improvement of the matter of preservation of library collections more operatively; to more effectively use modern, expensive equipment, a development which will make it possible to reduce the sum of money spent for its purchase and organize work on a cooperative basis. (All this will give a substantial economic effect in the exploitation of expensive equipment, and help consistently conduct the training and retraining of restorers); to coordinate plans of scientific research with other Centres. All these arrangements will favour a more rational use of scientific cadres and of State grants, and eliminate the unjustified duplication of scientific effort. These developments will also help to create a widely available data bank concerning the activities of libraries of the USSR and other organizations in the field of conservation and restoration of library collections.

The realization of the tasks of restructuring of the activity of the Library in the field of preservation of library collections and the creation, in the course of the reconstruction, of the Library of the All=Union Research Centre for conservation and restoration of documents, calls for the improvement of its staff structure.

Conclusion

The major points of the Programme of preservation of book and manuscript collections have been cited above. Questions connected with the training of restorers, the raising of their qualification, the improvement of the material and technical base, and the creation of regional restoration centres are viewed as priorities. It goes without saying, that the assurance of normative condition of storage is a factor of great importance. Nevertheless, this problem will be solved on a stage=by=stage basis and will be a long=term proposition since it is connected with the reconstruction and construction of new buildings, the provision of libraries with air=conditioning systems, the development and installation of centralized systems of dust=cleaning of collections, etc.

There also exist issues, which can be solved only through the development of an international programme for preservation of library collections and this, first of all, applies to research. It would be expedient, in our opinion, to create a summary plan of themes of research in the field of conservation and restoration conducted in different libraries of the world. The joint efforts of specialists in the development of modern methods of conservation and restoration of library collections will guarantee the high level of studies, and what more the expenses of a single country would substantially diminish.

In 1982, the SLL offered a plan of cooperation with NL of Bulgaria, Poland, Hungary, Czechoslovakia and the GDR, which contained 22 themes. The NL of these countries expressed their willingness to participate in joint research project dealing with different aspects of document conservation and the development of uniform methods of research of the most labour=consuming problems. However, for certain reasons this plan was never realized.

The IFLA Section for Conservation is a body, which unites and coordinates the activities of libraries on an international level. We think that it would beneficial particularly for our country, which has a lot of problems and an insufficient number of scientific and technical possibilities, to solve the most urgent problems of document conservation in cooperation with other libraries.

La communication a distance de banques d'images pour le grand public

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ABSTRACT

Le grand public qui fréquente les établissements culturels est caracteérisé par sa grande hétérogénéité et la diversité de ses motivations.

Très sensible à l'attrait de l'image, ce public est maintenant prêt à aborder de nouveaux services culturels, rendus possibles par le développement des nouvelles technologies comme la numérisation et les télécommunications à grand débit.

L'exposé analyse les attentes du grand public en matière d'image et les fonctionnalités souhaitables pour des services culturels multimédia. Il présente à titre d'exemple, quelques caractéristiques du projet de communication à distance de banques d'image en cours de réalisation par la Bibliothèque Publique d'Information du Centre Georges Pompidou.

PLAN

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CONCLUSION

1. LE GRAND PUBLIC

1.1 Son hétérogénéité fondamentale

Il est habituel de désigner sous le terme général de grand public l'ensemble des personnes qui fréquentent librement les établissement culturels, musées ou bibliothèques publiques, ou qui visitent des expositions. Cette fréquentation peut, suivant les cas, être payante ou gratuite, réligère ou occasionnelle. En tout état de cause, elle n'est liée qu'à la motivation, l'intérêt ou la curiosité des personnes concernées, désireuses de trouver, dans l'établissement public où elles pénétrent, une réponse à leur attentes culturelles individuelles. Ce public est donc, par nature, beaucoup plus diversifié que celui qui fréquente un établissement spécialisé orienté vers une clientèle ciblé, tel qu'une bibliothèque universitaire, un centre de recherche, ou un centre de documentation professionnel.

Différents enquêtes statistiques ou sondages, réalisés auprès de ce grand public, permettent de mieux comprendre sa composition et ses habitudes de fréquentation . Les observations réalisées dans le cadre de la Bibliothèque Publique d'Information (BPI) du Centre Georges Pompidou, fréquentée en moyenne chaque jour par 13000 personnes, sont significatives de la diversité de ce public.

L'hétérogénéité est d'abord liée à la présence de toutes les d'âge : jeunes (scolaires et étudiants), adultes, personnes du troisième âge, même si les étudiants représentent près de 60 % des usagers.

Elle provient en second lieu des diverses catégories socio-culturelles représentées, tant par les niveaux d'études atteints (primaire, secondaire, supérieur) que par les types d'activités (lycéens, étudiants, actif, chômeur, retraité).

1.2 Sa démarche culturelle

L'aspiration culturelle du grand public est basée, elle aussi, sur une extrême variété. A la BPI, les motivations liées ou souhait de "s'instruire" arrivent en tête, elles sont suivies par la volonté de "se distraire". Ces motivations se traduisent naturellement sur le ruthme de fréquentation, selon les personnes, allant d'une fréquentation quotidienne de l'établissement au passage très occassionnel. Elles sont également perceptibles à travers l'intensité d'approfondissemnt des sujets, variant du survol rapide d'un thème, suscité par la simple curiosité, à l'étude approfondie d'un sujet préalablement bien délimité.

Dans tous les cas, l'attrait de la découverte et de la nouveauté est apprécié par le grand public, mais à la condition indispensable que cette consultation puissent se faire facilement et sans besoin de formation préalable.

2. LES ATTENTES DU PUBLIC EN MATIERE DE CONSULTATION D'IMAGES

2.1 La place de l'image dans la mentalité contemporaine

Tout a été dit ou écrit sur la civilisation de l'image et sur le caractère omniprésent de la télévision: 95% des Français ont la télévision et 16% la regardent plus de 30 heures par semaine ; en outre, un foyer français sur quatre est désormais équipé d'un magnétoscope.

Cet état de fait a entrainé des mutations importantes dans les mentalités qui rejaillissent sur les pratiques et les aspirations culturelles. Car les générations qui parviennent actuellement à l'âge adulte ont connu la télévision dès leur naissance et l'ont ainsi totalement intégrée dans leur univers quotidien. A la différence des générations antérieures où la formation était fortement imprégnée des humanités et de littérature, la référence au visuel est maintenant une réaction générale. Aujourd'hui l'image est bien ce que veut le public, ce qu'il attend en premier lieu, à la différence du passé où un homme de grande culture, comme le Général de Gaulle s'était montré surpris, durant toute sa vie, du nombre de photographies qui se faisaient sur son passage et dont il ne voyait pas l'utilité.

L'image fixe animée permet une saisie intuitive, sensible, d'une situation, d'une personnalité même. Elle est, dans l'information, le document de base de compréhension immédiate sur lequel s'appuiera le commentaire du journaliste de presse ou de télévision. Une image peut tout bouleverser dans l'opinion et cet élément est maintenant d'une importance stratégique considérable, comme on l'a mesuré à la différence d'informations communiqueées à la presse, entre la guerre du Vietnam et la guerre du Golfe. De la même façon que dans l'information, nos contemporains attendent de l'image des possbilités de formation ou d'initiation.

2.2 Les supports actuels de consultation de l'image

Il est évident que cette évolution des usages du publics à l'égard de l'image et du son est lié à la diffusion de l'électronique et l'abaissement de son coût. Ainsi, la musique s'est répandue dans toutes les couches de la population et pour tous les genres de musique, mais surtout à travers des techniques nouvells (radio FM, disque compact, baladeur). Le retentissement culturel de ces facteurs techniques et économiques est donc considérable.

Dans le secteur de l'image fixe et animée, différents supports ont fait de même l'objet de tentatives de lancement par diverses sociétés d'électroniques. Les annonces fracassantes de lancement de matériels n'ont souvent été suivies que de succés médiocres dans le public. Une prudente attitude

d'observation semble donc avoir actuellement la préférence des constructeurs: les technologies existent mais le produit grand public de diffusion multimédia pour image fixe et animée se cherche encore.

L'histoire du vidéodisque est à ce titre intéressante. Depuis plusieurs dizaines d'anées, différents sortes de matériels ont été lancés sur la marché sans jamais connaitre la faveur du grand public qui ne voit pas l'intérêt de s'équiper d'un matériel spécifique pour constituer une collection de documents visuels dont la réutilisation lui parait incertaine. En France actuellement le parc d'appareils de lecture est peu développé, contrairement au Japon ; le vidéolecteur grand public qui permet également l'écoute de CD audio reste d'un prix très élevé. Il est à craindre que le vidéodisque ne se développe pas non plus dans les applications éducatives en raison du coût prohibitif du lecteur interactif. Par contre, l'utilisation du vidéodisque dans les applications institutionnelles est fréquente et souvent réussie.

Les vidéocassettes connaissent un développement significatif de l'intérêt porté par le public à l'image. L'usage domestique est fréquemment lié à la présence au foyer d'un jeune (de 15 à 24 ans). La souplesse du support comme la possibilité d'échange qu'il procure va dans le sens de la convivialité particulièrement souhaitée par cette tranche d'âge. La vente comme la location de vidéocassettes, auprès de magasins spécialisés ou de bibliothèques, sont en accroissement. Les vidéothèques sont en plein essor. La Vidéthèque de Paris étudie actuellement la consultation de son fonds par le réseau câblé parisien selon un programme préétabli.

L'image numérique n'a encore que peu d'applications en Europe. Après l'expérience de pionnier menée par le Musée d'Orsay depuis 1986, il n'est pas encore apparu d'applications pour le public. Mais plusieurs études de banques d'images numériques sont en cours dans les établissements culturels. Au Japon, les technologies de l'image numérique montrent une avance notable dans le domaine de la haute définition appliquée à la télévision comme à l'informatique ou aux télécommunications. Des applications sont en cours d'étude pour divers secteurs.

Il est important de remarquer aussi que le goût du public pour l'image se manifeste nettement dans le secteur traditionnel de l'édition. Le public est de plus en plus nombreux à acheter de l'image publiée de qualité : cartes postales, livre illustrés, catalogues d'exposition. Les livres d'art se vendent à un grand nombre d'exemplaires, même s'ils atteignent des prix très élevés.

2.3 Les caractéristiques de la demande du public en matière d'image fixe

La qualité de l'image

Les observations exprimées par le public de la BPI font apparaitre l'importance primordiale de la qualité de l'image. Pour les étudiants et les spécialistes, il est en effet indispensable de pouvoir déchiffrer les détails. Pour une Vierge à l'Enfant tenant un oiseau, il est nécessaire de pouvoir identifier l'oiseau pour comprendre le symbole. Il faut de même pouvoir déchiffrer des plans anciens ou lire les mentions sur les gravures ; le vidéodisque n'apporte donc pas une qualité suffisante pour tous les usagers. Plus généralement encore, et sans préjuger de l'intérêt d'une image, le public en attend inconsciemment une émotion, le choc de la qualité esthétique ou du caractère surprenant d'un document. Le public cherche aussi à mieux approcher les oeuvres d'art et il apprécie particulièrement d'en voir des détails.

L'information d'accompagnement

L'image sans le texte n'inteéresse cependant pas le public. Les sondages ont montré que 50 % du public réclame des commentaires plus complets et plus précis sur les images. Même si le feuilletage aléatoire d'un vidéodisque sans les commentaires parait un délassement ou est souvent pratiqué par les nouveaux utilisateurs de la bibliothèque qui s'initient au fonctionnement des appareils, cette pratique ne satisfait cependant pas.

Mis en présence d'images fixe sélectionnées, l'utilisateur veut comprendre l'inérêt de chaque document et retirer une connaissance de cette consultation. Si l'image attire, captive, apporte une compréhension instinctive, elle mène aussi à s'interroger. L'usager veut, en consultant, pouvoir disposer en même temps d'information précises et détaillées. La juxtaposition de l'image sur écran et du texte sur papier n'est plus satisfaisante.

Ainsi, les étudiants préfèrent toujours le support qui leur apportera le plus d'informations afin que leur apprentissage soit le plus efficace possible. La simple identification d'une oeuvre d'arte ne leur suffit pas mais ils utilisent volontiers au même titre que des livres, certaines vidéocassettes d'art très bien commentées. Leur attente dans le domaine de l'image fixe est très sensible. Il n'est pas rare qu'en histoire, par exemple les étudiants demandent une documentantition en images "pour les aider à réviser leur examens".

Le besoin de copies

Les utilisaieurs de l'image de la BPI ont, à 60 %, exprimé un besoin d'emporter des reproductions, des copies pour information. Cette demande s'exprime très largement et doit être rapprochée de la gigantesque consommation de photocopies qui est faite à la BPI. Déià, les lecteurs de livres photocopient largement en noir et blanc les illustrations des livres d'art. Mais la photocopie ne leur suffit pas, ils veulent des reproductions en couleur et en grand format. Les sondages montrent qu'ils sont

prêts à payer pour ces reproductions couleur un prix bien supérieur à la photocopie.

2.4 Les modes d'accès

Les Français sont plus à l'aise que d'autres Européens dans le maniement d'appareils. L'interactivité est couramment pratiquée avec le Minitel présent dans chaque foyer français et cette aptitude peut également être constatée à travers la vente de matériels comme les lecteurs de vidéodisques grand public qui, actuellement, est plus rapide en France que dans les autres pays d'Europe.

Le public français, que ce soit par l'utilisation quotidienne des services vidéotex accessibles depuis son domicile ou en exprimant des questions dans les bibliothèques, interroge par sujet avec une logique de base de données.

A travers l'usage du minitel et des bases de données, ce public est désormais habitué au paiement à la consommation et use couramment des services ainsi proposés.

3. LES FONCTIONNALITES NECESSAIRES POUR REPONDRE A CES ATTENTES

3.1 L'integration des différénts supports

L'expérience de la BPI montre que le public veut pouvoir s'informer sur le sujet qui l'intéresse en consultant tous les types de documents pertinents : texte, image fixe ou animée, document sonore. La notion de "collection multimédia", composée de ces différents supports présentés parallèlement, comme elle existe actuellement à la BPI, peut désormais évoluer vers celle de "consultation multimédia" de ces différents documents sur un même écran. D'une part, de nouvelles possibilités technologiques sont apparues permettant d'intégrer sur un même poste de consultation des documents de natures diverses, et d'abord l'image et le texte. D'autre part, le public a acquis une suffisante aisance dans l'appreéhension et le maniement de base des appareils. De même que l'usager assimile rapidement les possibilités de parcours d'un vidéodisque ou le maniement d'un Minitel, il appréciera de pouvoir suivre une démarche propre pour appréhender un sujet à travers dse documents différents.

Cette option d'intégration est celle des constructeurs qui ont mis au point l'affichage par multi-fenêtrage de documents divers : texte, image fixe et animée. Elle sous-entend également un grand projet éducatif, le projet ATHENA-MUSE développé par le Massachussetts Institute of Technology dans la perspective des années 2000.

Un défi de cette fin de siècle en matière d'accès au documents va donc être d'offrir l'intégration de supports différents permettant à la fois une consultation souple dans une grande masse d'informations et des moyens d'investigation nouveaux.

3.2 L'ergonomie

Pour permette la consultation de banques d'images puis de banques multimédia par le grand public, il est nécessaire de concevoir un outil simples d'emploi qui ne nécessite aucune formation préalable de la part du public. Ceci est très différent de la consultation de bases de données documentaires qui ne sont pas faites pour le grand public mais sont destinées à un public spécialisé. Cette ergonomie devra avoir pour trait caractéristique un maniement simple, "intuitif", de facon à établir d'emblée un dialogue interactif.

3.3 Une orientation encyclopédique et thématique

Les demandes du grand public concernent tous les sujets et peuvent, toutes, emprunter touts les approches. De ce fait, l'orientation encyclopédique du fonds est une conséquence de la nécessité de répondre le plus largement possible aux intérêts.

Tout en étant vaste, la documentation apportée ne doit cependant pas atteindre un niveau de spécialisation qui dépasserait le cadre de l'information demandée. Ce caractère encyclopédique du fonds peut être organisé soit à partit d'un fonds unique, soit par la mise en réseau de plusieurs serveurs fonctionnant de façon transparente pour répondre aux questions des utilisateurs. Une présentation thématique du fonds en dossiers d'images est la plus propre à répondre au niveau d'information générale des questions des utilisateurs.

3.4 L'évolutivité du contenu

Pour s'adapter aux besoins un service multimédia devra nécessairement pouvoir évoluer, aussi bien dans le contenu, les documents proposés en consultation que dans l'ergonomie, le mode de présentation offert. Il faudra donc pouvoir prendre en compte les réactions du public et adapter le fonctionnement aux centres d'intérêts qui se feront jour, comme aux pratiques d'utilisation.

3.5 L'animation

Pour être perçu par le public comme in instrument d'information actuel et évolutif, la communication de banques d'images devra être accompagnée de présentations ponctuelles de nature à susciter la curiosité du public. Ainsi pourra être réalisée la présentation de dossiers iconographiques sur des expositions culturelles en cours de présentation, des montages particuliers de dossiers liés à des thèmes d'actualités,... Ces présentations renforceront auprès du public l'impression d'une collection vivante et liée aux intérêts actuels.

3.6 Le système de paiement

Le grand public demandeur de services est prêt à payer pour ceux-ci quand il en percoit la valeur ajoutée et l'adéquation à ses besoins. Il a déjà une certaine habitude de payer dans de nombreuses bibliothèques pour des photocopies d'articles, ou des consultations de bases de données. Un service d,interrogation de base de données multimédia et d'obtentiuon de tirages sue papier peut donc faire l'objetrd'une facturation, à condition que celle-ci ne génére pas de contraintes ou de lourdeurs de fonctionnement pour l'établissement culturel, et soit d'un emploi aisé pour le public...

4. UN EXEMPLE DE COMMUNICATION A DISTANCE : LE PROJET DE SERVEUR IMAGE ET TEXTE DE LA BPI

4.1 Des postes de consultation en local et à distance

Le principe de base du projet est de permettre un accès à distance à la banque d'images de la BPI (comportant des dossiers d'images et leurs commentaires) et d'élagrir progressivement cet accès à d'autres collections d'images.

Les postes de consultation seront identiques à la BPI et dans les bibliothèques établissements culturels connectés. Chaque poste sera basé sur un micro-ordinateur et comportera un écran haute résolution, un track-ball, un clavier, une imprimante couleur et une imprimante noir et blanc permettant l'impression du texte et de l'image.

L'ergonomie sera basée sur des menus attractifs, agrémentés d'illustrations et comportant des icônes et des listes déroulantes. Elle permettra l'accès aux images en taille réduite, accompagnée de textes de commentaires, et en plein écran. Lorsque l'appareil ne sera pas consulté,un programme cyclique informant sur le service s'exécutera automatiquement. Outre la consultation interactive de la banque d'images,il proposera l'accès gratuit à un dossier de démonstration. Le service offrira également, une consultationde programmes sur les expositions culturelles à Paris en cours de présentation. Ces différents programme seront téléchargés depuis le serveur.

Afin d'assurer la viabilité économique du service, les bibliothèques dans lesquelles seront installées ces postes de consultation, pourront, si elles souhaitent, répercuter les frais de fonctionnement (notamment coûts de communication et d'impression noir et blanc ou couleur) sur l'utilisateur final, au moyen d'un système de paiement par carte mis à leur disposition.

4.2 Les télécommunications

Le projet met é profit les opportunités proposées par la technologie du Réseau numérique à Intégration de Services (RNIS). Ce nouveau réseau permet de transmettre des données numériques à haut débit. Des documents d'origine diverses: texte, image fixe, son peuvent ainsi être transmis simultanément. Aux possibilités ouvertes par le réseau, s'ajoutent les progrés dans la compression de l'image numérique. Une image couleur de haute qualité peut maintenant être transmise sous forme compressée en 8 secondes.

La base sera comprosée d'images numérisées et de textes saisis. Conformément à l'objectif de communication au grand public, les images seront d'une très bonne qualité de consultation mais d'une définition inférieure à celle de l'édition. La numérisation des images est prévue au standard de diffusion vidéo broadcast (720 points x 576 lignes) avec compression normalisée JPEG.

Le réseau d'images et de textes sera localisé à la BPI. Lors de la première phase de test, cinq bibliothèques municipales francaises seront connectées au nouveau service. Ultérieurement, d'autres serveurs pourront également devenir interrogeables à distance, à travers le RNIS. L'accès à d'autres collections rendra alors possible l'échange de fonds. Dans plusieurs municipalités, cette possibilité parait particuliérement intéressante pour la diffusion de fonds iconographiques locaux aussi bien dans différents établissements culturels de la ville qu'à distance, dans d'autres villes équipées.

4.3 Les analyses statistiques

L'utilisation des diverses fonctionnaleités des postes de consultations, générera des statistiques détaillées sur les consultations réalisées par les utilisateurs. Ces statistiques, remontées quotidiennement par télé-transmission vers le serveur de la BPI, seront périodiquement expoitées afin d'analyser l'intérêt porté par le public aux divers dossiers,les images les plus recherchées ou imprimées, etc... L'actualisation et l'enrichissement du fonds pourront donc être réalisés en conséquence.

De même, une analyse du comportement des utilisateurs: examen rapide de dossier, étude approfondie, demande d'impression de textes et d'images en noir et blanc ou en coleur haute qualité, etc...; permettra de mieux cerner les tendances et d'orienter l'evolution du service.

Enfin ces statistiques permettront de mieux analyser la sensibilité du public au prixdes divers services proposés et donc de les faire évoluer de manière cohérente.

4.4 L'ouverture sur le futur

Outre l'intérêt évident de répondre à coût terme aux attendes du grand public de certains établissements en matière de consultation de fonds d'images et textes associés, le projet de la BPI, permettra, par sa capacité à proposer des services et à en analyser l'impact auprès du public, d'ouvrir de nouvelles pistes pour le développement de produits culturels.

En effet, il est envisageable, par exemple, de créer sur des supports du type CDI des sous ensembles de dossiers plus délimités, centrés sur certains domaines en fonction du succès constaté auprès public. Une partie de fonds pourrait ainsi demeurer à disposition permanente en local sans nécessiter de télécommunications.

CONCLUSION

Le grand public qui fréquente nos établissement culturels, est bien évidemment marqué par notre civilisation de l'image.

Cette relation entre le public et l'image a longtemps été caractérisée par une attitude plutôt "contemplative" par exemple lors de la visite d'expositions de peintures ou de photographies, ou plus récemment, lors de la lecture d'albums ou la visualisation de bande vidéo.

Elle peut maintenant, grâce aux technologies modernes de numérisation, de stockage et de transmission, devenir véritablement interactive, le public ayant enfin la possibilité de manipuler et visualiser ces images simplement.

La dimension culturelle que ces technologies vont permettre d'apporter au grand public n'en est encore qu'en ses balbutiements, notamment dans l'integration des images dans leur contexte informationnel textuel associé.

La réponse aux attentes du grand public par la création de nouveaux services est un des défis auxquels nombre d'établissements culturels vont être confrontés dans les années à venir. L'heure semble venue de commencer à les mettre en oeuvre et à les tester, à travers des projets d'expérimentation de tailles significatives, grâce à la collaboration inter-établissements au niveau national et européen.

Electronic Document Delivery and Libraries: Technologies, Strategies, and Issues

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Abstract

While access to biblographic information has been greatly improved through the use of information technologies, thr delivery of primary documents to end-users remains largely dependant upon traditional manual methods: users can find what they need quickly and easily, but often experience long delays in receiving the requested information. This disparity between information access and document supply potentially can be overcome through *electronic document delivery*, the use of electronic forms of documents and transfer media to automate the entire document delivery process, from the initial selection of a relevant citation, to the final delivery of the document. Such capabilities are especially improtant given the potential quantum leap in information access that will be enabled by emerging telecommunications infrastructures, such as research computer networks. This paper describes a number of converging technologies and international standards for electronic document generation, storage, and transfer that are becoming available to create electronic document delivery systems, and attempts to provide strategies for their coordinated use. Some relevant issues are also explored.

Keywords

Electronic document delivery
Research networks
Electronic libraries
Open Systems Interconnection
Office Document Architecture
Message Handling Systems
Information workstations
Directories
Imaging
Copyright

1. Introduction

Information technology has enhanced many aspects of library work by automating the organization, storage, and retrieval of information. Technologies such as public access catalogues and online databases have expanded access to biblographic information, providing faster and more efficient access to a wider variety of materials. However, despite the ease with which bibliographic references are found, users often experience long delays in receiving the primary document to which the citations refer. This situation stems from: 1) numerous pressures which have forced libraries to shift from the acquisition of materials for local collections to providing *access* to those located at remote institutions, such that larger and larger percentages of documents must be requested and delivered from non-local sources; and 2) the applicaton of information technology primarily to the retrieval of bibliographic information, rather than the physical delivery of actual documents to end-users. This disparity between bibliographic access and document supply threatens to become even more acute as a result of the quantum leap in bibliographic access engendered by recent developments of end-user searching of locally mounted citation databases, CD-ROMS, and network-accessible library catalogues.

The imbalance between access and supply can be potentially overcome through *electronic document delivery* — the use of electronic forms of documents and transfer media to automate the entire document delivery process, from the initial selection of a relevant citation, to the final delivery of the document. This will permit the currently unevenly automated and discontinuous process of document delivery to be brought into a coherent whole, allowing researches to select and obtain documents directly from their workstations.

Integrated electronic document delivery systems will form a crucial part of the electronic libraries

that have been envisioned for development on the research computer networks that link academic and research institutions throughout the world. There are major initiatives underway, such as the NREN initiative in the U.S., to create information networks capable of providing easy access to vast information resources. Also referred to as *virtual libraries ,or libraries without walls*, electronic libraries have three primary characteristics (from Kibbey and Evans, 1989):

- *location independence*, the ability to access information from the workplace, regardless of where that workplace is located
- *breadth of contents*, the ability to directly access primary information, not just the pointers to this information in the form of bibliographic references
- *ease of use*, the ability to use the electronic library without detailed knowledge of various interfaces, search conventions, or databases formats.

There are a number of converging international standards and technologies that are becoming available to make such electronic libraries possible, including those for electronic document generation, storage, and transmission. This paper describes these converging technologies and international standards, first examining the current document delivery environment within which libraries operate to procure documents, and outlining the problems that affect the speed and efficiency of the document delivery process. It then attempts to provide strategies for the coordinated use of these standards and technologies to create integrated electronic document delivery systems.

2. The current document delivery environment

The primary mechanism for sharing materials traditionally has been interlibrary loan, involving the mutual lending and borrowing of materials among libraries (Line, 1989). This activity has evolved considerably over the last 75 years and presently involves, not just libraries, but a heterogeneous set of mechanisms or services to obtain requested materials for end-users (often referred to as *document supply* and *document delivery*). While the services can often vary slightly in certain respects — the supply of photocopies or originals, requested by telephone or ILL subsystem, procured from libraries or document supply centres, and sent by ground mail or fax — they essentially accomplish the same goal of putting locally unavailable materials into the hands of end-users.

These various methods of document delivery, examined as a whole, may be considered to constitute the *document delivery environment* within which libraries must operate to procure documents for end-users. Regardless of the specific types of documents, requestors, and document sources involved, the primary processes involved are similar. These functions include:

- *document selection*. Document selection involves the activities required to determine what document is required to meet a user's particular information or research need. Although finding bibliographic references is not generally considered to be part of the document delivery process, it is the first stage in the overall process of obtaining information and is, as such, a precondition of document delivery. Finding bibliographic references is the most highly automated function within the document delivery environment. However, a major problem with current systems is that they are not connected to systems used at other stages in the document delivery process. This lack of linkage between information retrieval systems and other, often non-automated, systems for retrieving and delivering documents, contributes to the discontinuity between the access and supply of documents.
- *request handling*. This is the set of functions that involves the negotiations between a requestor and document source for the loan of a document or the supply of its surrogate, termed here as *request handling*. These functions include activities such as verification of the citation, compliance with copyright restrictions, and location of a potential document source(s), as well as request submission, request tracking, and other possible transactions. While the request handling portion of the document delivery process has also been automated to a fairly high degree through the use of electronic mail and ILL subsystems, problems do remain. These include an inability to exchange message between different telecommunications networks, conflicting ILL message formats, and non-standard message sequences (Turner, 1990).

The document delivery process to this point has been relatively well automated, allowing quick and efficient selection and requesting of non-local materials. In contrast, automation of the remainder of the process, namely, the storage and transfer of documents, remains largely based on traditional manual methods. This lack of automation represents the most severe interruption of the flow of information within the document delivery process.

- *Document storage*. Although databases of electronic documents have recently begun to appear, such as the journal article image databases developed through projects such as ADONIS, the dominant method of document storage remains largely print materials arranged on library shelves (Rice, 1990). The predominance of this traditional form of document storage requires that a number of time-consuming and labour-intensive operations be performed at the document source. These manual operations include physical retrieval of materials from shelves, processing through circulation and security systems, and manual photocopying of materials, and

faxing or packaging and shipping materials (Boucher, 1984).

- *Transfer.* One of the least automated functions in the document delivery process is the final transfer or delivery of an item from a document source to a requestor. The dominant method of document supply remains the transfer of paper-based materials through regular postal services (Plassard, 1989). Facsimile is currently used in some libraries for document delivery, however, only a small portion of all documents are supplied in this manner.

3. Convergeht technologies for electronic document delivery.

A number of severe interruptions in the flow of information are apparent in the process of document delivery. These are caused by: 1) varying levels of automation; and 2) a lack of compatibility between existing automated systems. There are a number of technologies and international standards that are available to address many of the problems that diminish the effectiveness of current document delivery systems. These technologies form potential "building blocks" of electronic document delivery systems that can be used to integrate and automate the various functions within the document delivery process.

Electronic document conversion and representation.

A major problem in shifting from the delivery of paper documents to electronic documents is the extensive body of print materials that libraries have collected that must be converted into electronic form. Scanning and OCR are two techniques available to transform paper documents into electronic format:

- *Scanning* produces representations of documents trough raster-scanning that are simple bit-mapped images of pictures and/or text (Cawkell, 1987). It is the most useful technology for *en masse* electronic conversion of paper documents. A drawback of this form of storage is that the content of the electronic image cannot be edited or manipulated. For this reason, standard information retrieval techniques, such as keyword searching, cannot be used to retrieve relevant documents.
- *OCR*, or optical character recognition, is a method by which the textual content of scanned images is converted into character code thereby making the text available for manipulation. OCR technology reduces the storage space needed to store documents as well as enables text-based tasks, such as information retrieval and automatic indexing, to be utilized.
- *Telefacsimile* (FAX) allows the digitization and transmission of documents, and their subsequent printing, to be done in one step. Most fax transmissions occur over standard voice-grade telephone lines allowing them to be sent almost anywhere in the world.

Though the above technologies convert existing paper documents into electronic form, there is an increasing trend to represent documents in electronic format throughout all stages of their development, from initial creation on word processors, through editing, to final typesetting or on-screen display. Standards available for document representation include:

- *Office Document Architecture (ODA).* ODA is an ISO standard for specifying both the content and layout of a document that can simultaneously contain text and graphics (Dawson and Neilson, 1990). The specific aim of ODA is to facilitate the interchange and remote access to documents.
- *Standard Page Description Language (SPDL).* Page Description Languages, such as PostScript, define the layout of an electronic document but not the content; they specify the exact manner in which a page should appear when printed.
- *Standard Generalized Markup Language (SGML).* SGML is a device-independent, process-independet ISO standard for adding "tags" to a document to explicity identify its logical structure, such as headings, subheadings, and paragraphs.

Storage technologies

Mass storage devices will be required to support the large image and electronic document databases that will form the basis of electronic document delivery systems. The primary candidates for these databases, already used to some extent, are optical storage devices which possess greater storage density and are less sensitive to deterioration or contamination:

- *CD-ROM* (compact disk read-only memory) is the original optical storage technology available since the mid-1980s. Its primary use has been for publishing large amounts of information that is updated infrequently.
- *WORMS* (write once, read many times) technology is a step beyond CD-ROM. It allows databases to be created locally rather than having to use costly disk mastering services. WORM is ideal for storage of large amounts of custom data that does not need to be updated often.
- *Magneto-optical (MO) disks* is the first eraseable, rewriteable optical storage device.

Although CD-ROM and WORM drives are idealfor certain applications, eraseability and rewriteability allows MO drives to function as general purpose storage devices.

Communications technologies and standards.

A number of communications technologies and standards are also emerging that will support the digital transmission of electronic documents. Various alternatives available to support transmission include:

- *Research networks.* Research computer networks link academic and research institutions throughout North America and Europe, as well as Australasia, the Far East, Latin America, and Africa. They have been envisioned as the infrastructure that will support future electronic libraries. A major initiative in this area is the National Research and Education Network (NREN), a high-speed, high-capacity research network that is to be developed by the mid-1990's.
- *Integrated Services Digital Network (ISDN)* is a standard that provides end-to-end digital connectivity in the place of regular analogue telephone lines. ISDN will provide more economical telephone service, higher capacity facilities for data communications, as well as support for high-speed computer communications, packet- and circuit-switched data services, and high-speed facsimile services.
- *FDDI.* The Fibre Distributed Data Interface (FDDI) standard specifies a high-speed platform for developing backbone local area networks (LANs). FDDI uses fibre optic media operating at 100 Mbps. This is ten times faster than the well-established ethernet standard which uses coaxial cable operating at 10 Mbps.

While the underlying physical network may be formed by technologies such as research networks, the specific tasks supported will be accomplished through the development of higher-level services called *applications*; these are the actual services that are provided to end-users, be they human or machine. The ability of one application to communicate with another is an important element of electronic document delivery systems, as well as any other type of network application. Such interconnectivity can be achieved by basing applications on the standards for Open Systems Interconnection (OSI). OSI refers to the automated procedures (protocols) that will allow the computers of different manufacturers to communicate with each other and share resources. The specific OSI application protocols available to develop electronic document delivery systems include:

- *X.400 Message Handling Systems.* Message handling systems based on the CCITT X.400 application protocol manage the delivery of mail by providing an addressable envelope into which users, machine or human, can insert a wide variety of messages, such as facsimile images and documents structured with ODA. A key benefit of such transmission is that since X.400 is a store-and-forward service, where the network stores the message until the recipient is available to receive it.
- *File transfer. File Transfer, Access and Management* (FTAM) protocl and the *Document Transfer, Access and Manipulation* (DTAM) are two methods of transferring files from computer to computer. FTAM, ISO 8571 can be used for the reliable transfer of large documents between computer systems. DTAM, CCITT Recommendation T.431, is intended to support bulk transfer of Group 4 facsimile and mixed-mode Teletex documents as well as interactive manipulation of remote documents that are structured according to the ODA. A limitation of these methods with regard to document delivery is that a direct connection between machines is necessary for the file transfer process.
- *ILL Protocol.* The ILL Protocol is a computer communications standard based upon the OSI Reference Model for exchanging ILL messages such as borrow requests, indications of receipt and return of borrowed items, renewal requests, notifications of lost items, and cancellation of requests. The ILL protocol will enable ILL systms to communicate regardless of the design of the ILL software, the hardware used to run the system, or the communications services selected to transmit the ILL protocol messages (Turner, 1990).
- *EDI* Electronic Data Interchange (EDI) involves the electronic exchange of business documents such as purchase orders, invoices, shipping notices, based on standards that specify the structure and syntax of the data to be exchanged.
- *X.500* The CCITT X.500/ISO 9594 Directory standard describes services and protocols which will provide global access to a repository of network-accessible information. It defines one global directory that is logically centralized, but physically distributed across numerous interconnected nodes. Basically, the Directory acts like a phone book for computer networks.
- *SR* Search and Retrieve (SR) is a protocol that allows an application on one computer to query the database on another computer. It specifies a general framework for transmitting and managing database queries and results.

4. Coordinating technologies for electronic document delivery.

The standards and technologies outlined above form s constellation that potentially can be brought together to create fully integrated electronic document delivery systems. Such systems will eventually allow users to select, request, pay for, and obtain documents for onscreen display or hardcopy production direct from their workstations. This section will attempt to coordinate these standards and techologies leading toward the development of fully integrated electronic document delivery systems.

The immediate future.

In the immediate future, the goal will be to automated those parts of the document delivery process that are still based on manual methods, and to make these systems available to interlibrary loan departments. Specifically, those areas are request handling, document storage, and document transfer.

Request handling. Once a request has been submitted by user to a local ILL department, an ILL application based on the ILL protocol can be used to call up standardized forms that are filled in with the appropriate citation information and other transaction details. A communications technology, such as an X.400-based message handling system, can then be used to automatically forward these messages to the lending institution. A peer ILL application at a receiving institution can then accept the message, extract the appropriate data elements, and proceed with further processing. The advantages of such implementations are similar to those associated with current ILL subsystems, including off-line preparation and storage of messages, and concomitant reductions in clerical activities. In addition, the interoperability offered by the ILL protocol will bring the large number of disparate ILL systems maintained by many libraries into one framework, thereby reducing costs, procedures, and the need for staff training, as well as increasing the scope of potential lending institutions (Turner, 1990).

Document storage. Because documents are currently stored predominantly in paper form, initial strategies will involve "on-the-fly" conversion into electronic form. Group 4 fax machines, which do not require preliminary photocopying and can output on standard bond paper, can be used for such conversions. Alternatively, scanning workstations, such as ARIEL developed by RLG, can also be used to convert documents into electronic form for one-time transmission. For frequently requested documents, the scanned image may be stored locally on WORM or E/O drives for subsequent use.

More automated schemes will take advantage of permanent sources of scanned documents created from the existing paper corpus through *en masse* scanning and OCR techniques. Many projects, such as ADONIS, have already successfully created image databases consisting of journal articles on CD-ROM. These databases can take the place of physical "books on shelves" systems of storage, and thus will be available to be linked directly to the requesting portion of a document delivery system.

Document transfer. Message handling systems, such as those based on the X.400 standard, have the potential to deliver the primary document in addition to the document request. One particular advantage of using an X.400 message hanling system is that a fax or scanned image can be contained within the X.400 envelope. Thus, primary documents in such forms can be sent by return electronic mail in response to requests. Other alternatives for transmission inclide file transfer through DTAM and FTAM. These methods, however, do not possess the advantages of store-and-forward systems.

The underlying network supporting the transmission of requests and documents, at least for research libraries, will most likely be research networks. Research networks are currently in place, whereas ISDN has yet to be fully implemented. Experiments in the transmission of fax and scanned images, in fact, are currently taking place over the *Internet*, the major research network in the U.S.

Information workstations.

While these immediate strategies will help redress the imbalance between document access and supply by automating and streamlining the requesting and delivery process in ILL departments, the ultimate goal will be to create fully integrated electronic document delivery systems that will enable *end-users* to select, request, and obtain primary documents at their local computers. These configurations will form the information workstations that will serve as the gateways to future networked electronic libraries. Although the stages of selection, requesting, and transfer are described separately below, they would most likely be implemented in an information workstation as a seamlesss interface.

Selection and requesting. In the current environment, end-users already have access to a wide range of bibliographic resources. These are available in the form of OPACs, CD-ROM databases, and locally mounted citation databases. Increasingly, such resources are becoming available through campus-wide networks that enable users to access them from their own computers. This bibliographic environment has recently been expanded by the connection of campus-wide networks to regional and national research networks, such as the *Internet in the U.S.* and JANET in the United Kingdom. Users can thus access databases located across a campus, across a country, or on another continent. There are, however, currently three problems with network-accessible systems: 1) the systems linked to the networks typically have very different user interfaces requiring learning of new interfaces every time another system is searched, as well as differentiating between details of systems that are used regularly, 2) it is difficult to discover the locations of the systems on the networks, and 3) the systems typically do not provide access to primary documents. Recall that the ideal electronic library is characterized by *location independence*, *breadth of contents*, and *ease of use*. While access to databases via computer networks satisfies, in part, the criteria of location independence, it fails to satisfy

the latter two criteria.

The last criteria can be met through the creation of electronic document delivery (EDD) applications based on X.500 Directory services, the SR protocol, the ILL protocol, and EDI. For example, an EDD application may be constructed using X.500 to assist the user in discovering the locations of information resources available on the network. X.500 itself, or implementations of SR, would then allow the user to engage in information retrieval in a number of databases on the network with a single user interface. The SR or X.500 application would then return a result set and present it to the user in a manner native to the local system. At this point, the user could examine the resultant set of citations for relevant material. Further extensions could be developed to allow the user to determine the form of the primary electronic document linked to the citation; that is, whether it is scanned imaged (as well as its resolution), or whether the document is represented in ODA, SGML, or SPDL.

An EDD application could also integrate requesting functions. Citation information of selected documents could be tagged by the user and submitted automatically to an ILL sub-function. Again, using communications technologies such as X.400, the request information could be automatically forward to a document source where a sibling application would accept and process the request. Additionally, EDI could be used to support any fee or royalty payment transactions that may be associated with a particular document.

Storage and transfer. While scanned images may always play a role in electronic document delivery systems, the trend toward representing documents in electronic format throughout all stages of their development will supply ready-made electronic documents in a variety of representations for future distribution. It is important to note that databases of primary electronic documents could located at the local institution as well as at remote institutions. Thus, a request could be satisfied locally and sent to the user's workstation if it is held at the user's own institution. Alternatively, it could be requested automatically by the EDD application from a remote document source if it is not available locally. The final transfer of documents could be accomplished through the use of X.400, FTAM, or DTAM, supported locally over FDDI-based high-speed LANs, and nationally and internationally over high-speed networks such as the planned NREN.

5. Issues.

The shift from paper-based information systems to integrated electronic document delivery systems will have a strong impact upon established patterns and processes associated with information production,access, and distribution. While many issues will arise in the shift from paper-based systems to electronic systems, two primary issues are those of copyright and changes in the scholarly communication cycle.

Copyright.

A major obstacle asociated with electronic document delivery is the issue of copyright. This issue concerns the fact that the existing body of laws governing intellectual property rights, such as patents, trade secrets, unfair competition, as well as copyright, have not kept pace with rapid advances in information technology. Even in current photocopy-based document delivery systems, there is already considerable debate over the copyright issue; to compensate producers of the additional copies made of their work, many countries have some form of Public Lendind Right (Cornish, 1990).

In electronic document delivery, the whole concept of delivering documents electronically is based on making a copy of a work every time it is needed. In an electronic document delivery system, where literally millions of copies of a work may be sent to millions of users, developing strategies for fair compensation becomes crucial. One proposed solution to this problem is to embed compensation mechanisms within electronic document delivery systems (Kost in Avram, 1989). In such a system, debits and credits could be applied to the accounts of information producers, distributors, and consumers automatically based on the use and rates of copying of a particular piece of information.

An issue related to electronic document delivery is the problem faced when making digitized copies of paper documents. If paper-based materials to be digitized are copyrighted, then the act of making exact digital copies violates that copyright. Since one major source of documents for electronic document delivery be will be digitized images, copyright issues will need to be considered at two stages: 1) during the creation of the initial digital image and, 2) when copies of the image are made available for distribution over research networks.

Scholary communication.

Another area that will be affected as electronic documents are increasingly created, stored, and delivered electronically is scholarly communication. Essentially, scholarly communication is the process by which intellectual and creative activity is transmitted from one scholar to another (Shaughnessy, 1989). Currently, it is a complex cycle that involves scholars and researchers who create the information, referees and publishers who evaluate and publish it in paper journals, and libraries, indexing services, and document suppliers who index, abstract, and make information available once again to scholars and researchers.

While this system has made scientific information more widely available for three centuries, it is presently under severe strain. First, long delays are often experienced from initial submission of

manuscripts to final appearance in print journals because of the sheer volume of materials that must be reviewed and edited. These delays act as obstacles to effective scholarly communication that are most apparent when the information in question is time-sensitive. In some disciplines, in fact, the peer review process has been by-passed through the use of informal electronic "journals" available online. Second, the explosion of the number of titles published, and the decreasing ability of libraries to purchase and maintain subscriptions, forms another barrier to scholarly communication because libraries cannot collect all available titles. Third, escalating journal prices have caused libraries to question the system wherein they must buy back the information that was created by their constituent population in the first place.

As the storage and delivery of documents shifts paper-based, manual methods to electronic methods, alternatives to the present system of scholarly communication become possible. Many scholars already create manuscripts in electronic form. In an eletronic-based scholarly communication system, these electronic manuscripts could undergo processes online similar to those of their paper-based counterparts. Specifically, blind reviewing, review by a panel of three scholars in the same field, and written comments to the author can potentially all be done online (Rogers and Hurt, 1990). This would allow the creation and evaluation stages of the scholarly communication cycle to automated in the same way that the later stages, namely selecting, requesting, and receipt of documents online, can be automated through integrated document delivery systems.

Such changes would profoundly affect the established patterns and institutions that currently control scholarly communication. While many questions need to be answered, the primary question is whether scholarly publishers should retain the role of arbiter and publisher as they do in the present system, or whether this role would fall to some form of online university-based publishing network.

Other issues.

Some other important issues that would need to be resolved as manual document delivery systems shift to electronic systems include:

- *charging.* The development of electronic document delivery systems will increase the ease and speed with which non-local documents can be delivered to end-users, and may, as a result, increase the proportion of such documents requested by users. This fact may intensify the current debate regarding charging for document delivery services. The inclusion of commercial suppliers as alternative document sources, and the ability to embed mechanisms for royalty payments whithin the delivery system, may force libraries to regularly charge users for non-local documents.
- *Bibliographic control.* Bibliographic control of electronic documents will be more difficult because of the ease with which this type of document can be modified. With paper-based documents, changes between successive versions of a single work are, for the most part, authorized, fixed, and recorded as separate editions. Electronic documents, by contrast, may exist in several forms, for example, as a scanned image, as OCR'ed text, or represented in ODA, SPDL, or SGML format. Furthermore, because electronic documents can be modified readily, any number of unauthorized versions of a document may be created. It will be extremely difficult to retain bibliographic control over such material.
- *Document archives.* Electronic documents will need to be stored in perpetuity in the same way paper documents are stored, even after they lose economic value. Currently, this is the role of large research libraries and legal deposit libraries. The same scheme of legal deposit must be extended to include electronic documents. Additional concerns arise in the long term storage of electronic documents that do not arise with paper documents; that is, upward system compatibility must be ensured so that information in obsolete data formats continues to be available.

6.Conclusion.

The international standards and technologies discussed in this paper are converging toward the creation of integrated electronic document delivery systems that will enable users to easily discover and obtain primary documents directly from their workstations. These systems will form an essential part of the electronic libraries that may emerge as the principal source of information in the coming decades. It is, however, impossible to predict the exact configuration that will appear at the focal point of these convergent technologies. Broad statements regarding the nature of future electronic libraries often belie the complex and, at times, chaotic development of information technology.

Despite such uncertainty, the strong momentum within the international academic community towards the development of network-accessible resources may act as a driving force for the integration of these technologies. Research networks, because they are widely interconnected and have the ability to support many forms of communication between computers and their users, may serve as a catalyst for the coordination of these technologies and the development of electronic libraries.

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The Beilstein Institute Facsimile Project

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Introduction

As is probably well known to most of you the Beilstein Institute for the Literature of Organic Chemistry in Frankfurt edits and publishes the Beilstein Handbook, the Beilstein Online Database and, recently, the Beilstein CD-ROM Database Current Facts. These three products form together the largest collection, worldwide, of substance data in the field of organic chemistry.

The editing procedure used in the Beilstein Institute for the preparation of these data consist of two fundamental steps.

In the first step all data and information about organic compounds are extracted from the original literature, collected in the Beilstein database and sorted. In the second step these abstracted data are edited, critically evaluated and corrected. Finally they are offered to the user in the form of standardised «Fine data» through the Handbook and the Online Database. During the course of the second step our editors have to look up each piece of data in the original publication many times.

The initial situation

Until recently the chemical literature, journals, patents and so on, needed by the nearly one hundred members of our scientific editorial staff was transported to the editing desks and returned after use to the storage area in our Institute. With several thousand movements per day this is an extremly personnel and cost intensive operation. Although multiple copied of most of the journals are available in the Institute 10-20% of the Literature requests lead to demand bottle-necks which are extremly irritating.

However we tried to optimize the editorial procedure the acquisition of internal literature turned out to be a strangulation point.

In connection with the development of a new computer supported editorial procedure I was given the job of finding a method, as automatic as possible, of ensuring that our scientific staff were kept supplied with the necessary literature.

After testing many alternatives like the use of automatic transport systems, photocopying methods, or microfilm based methods, an image storage and processing based solution was chosen.

This method consists of the digitalization of the contents of the most important journals, their storage on write once optical discs, the subsequent printing out of the publication, and the inclusion of the print-out in the working papers for each manuscript, a unit of about a hundred related datasets.

The choice of system.

System analysis allowed us to define our requirements. These are the ability to:

- handle more that 4 million documents
- scan 1 million pages per year
- print 1.3 million pages per year
- compress the image data according to standard CCITT recommendations
- Store data on optical WORM-discs
- automatically access WORM-discs using a jukebox
- automatically exchange data with our IBM mainframe

A high scanning and printing resolution of 400 dpi was seen as particulatly important since this enables the reproduction of the small print often found in journals, as well as the fine lines of chemical structural formulas, in excellent quality. At the same ume this also ensured a suitable standard for later automatic reading systems (optical characted recognition).

During a planning phase of almost two years, starting in 1987, we tested all systems which were on the market. Further analysis clarified (amongst others) such questions as

- the economics of in-house scanning vs. external scanning,

- the direct connection to international networks, and
- the legal aspects.

On the basis of these studies we were able, in November 1988, to place an order with FileNet Company, the leading manufacturer of large high resolution image processing systems.

Equipment configuration

The equipment was delivered and installed in just under four weeks after ordering.
The configuration is composed of the following components:

- a central server
- two scanner stations with batch feeds
- a juke-box with 204 WORM disks (12 inch; 2.6 GByte) and two opitical drives. This Juke-box can hold about 3 million pages available for immediate access.
- two 400dpi laser printer stations
- three work stations for indexing and checking

The components are connected to Ethernet. Communication with our IBM host takes place for the moment via a 3270 emulation and a co ax cable.

It took us about 3 or 4 months from installation to the start of full production. During this time we had to develop the user-software and to hire and train the staff. Within a few months the method had been optimized to the stage whereby the scanning rate could be raised to more that 6000 pages per 12 hour day.

Today our digital archive contains about three million scanned pages. In addition to the first application which we may call «Faksimile 1» a further application was started in 1990, which was recently followed by a third.

All these applications use the same hardware and comprise the scanning and reproduction of scientific chemical literature for the production of Beilstein products. Further applications are in preparation.

I do not wish to report upon all these projects and plans. I shall restrict myself to the «Faksimile 1» project, as this is our biggest application, which will, nevertheless, enable me to explain the most important spects of our procedures. The other applications are from the view of image processing very similar. The main differences lie in the way they are integrated into our editorial procedures.

The basis of the «Faksimile 1» procedure.

In the Beilstein database chemical data, structural formulas and literature references are all associated.

If the abstracted data are called up from the databank using an automatically prepared working list it is possible to access the literature references and generate a corresponding citation list at the same time. In this way the literature requirements of the editorial staff can be accurately predicted.

Investigation has shown that about 90% of the literature required is covered by about 150 of the most important journals. In the context of the first step of the project this amounts to about four million pages which should be scanned during approximately four years. The remainder of the literature requirements will be handled as before.

Detailed description of the method

The procedure consists of the following steps:

- Archiving
  - Preparation of the journals
  - Indexing
  - Scanning
  - Quality Control of the Scanned Sides
  - WORM Storage
- Reproduction

Each page is defined in our system as one document. The first page of each publication is marked as a starting page. In our definition each publication begins with its starting page and ends with the starting page of the next article.

In this way the scanning can be done rationally in large batches without the size of each publication having to be taken into account.

Preparation of the journals

The bound journals available in the Beilstein Institute (each volume about 1000 pages) are separated into single pages which are checked for irregular pagination; pages which should not be scanned are separated and errata and Beilstein internal corrections are incorporated.

Indexing

The index database is not what one usually imagines under this term since it does not have the ability to search for keywords. The index-terms used here give each page a unique name. Each index-term consists of:

- the CASSI-code, an internationally agreed six figure coding for journal titles
- the volume number
- the year
- the part number
- a mark if is a starting page or not

This index defines each page and each article uniquely. The index-term corresponds to the subset of literature citations defined in the Beilstein databank. It is, therefore, both a simple and a reliable format for the data exchange between the facsimile database and the mainframe database.

Indexing is done during the scan-stage. The starting pages of the publications are first of all abstracted from journal indexes and listed. The starting-page information is added in a later, automatic procedure to the index-terms.

In some special cases we had to expend our index definitions to hanble

- pages without a page number,
- folded inserts (like tables) with lager formats,
- journals with only one CODEN for more than one series, or
- alphanumeric page numbers.

This enables us to overcome known special cases or pagionation errors so that the publications are reproduced in full and in the correct order.

Scanning

Scanning is normally done on batches of 50 sheets (100 sides) using an automatic feed. The main steps are:

- Fixing the scan parameters.
- Entering the index-terms for the first and last sides of a scan batch (The index entries for the remaining sides are automatically generated).
- Putting in the batch and scanning the top sides.
- Turning the batch over and scanning the bottom sides.
- Compression of the pixel data.
- Storage of the compressed data on magnetic disks.

Quality control of the scanned sides

Quality control is carried out by randomly displaying sides on the screen.

WORM storage

The compressed image data and the index entries are stored on WORM disks. A backup WORM copy is simultaneously prepared. In addition the index data are stored on magnetic disks in a databank.

Reproduction

The datasets for the editorial staff are prepared, divided into manuscript packages and uniquely numbered on our mainframe. After downloading onto a PC they are printed out. The printed out. The prints are placed in ring files.

Parallel to this, order lists, which define the sequence of the literature requirements for one manuscript, and files for the cover sheets are generated on the mainframe. After transfer of these lists and files to the facsimile system an automatic reproduction procedure is started. The journal articles are printed in the order corresponding to the other manuscript data. On the top of each article there is placed a cover sheet, printed on coloured paper slightly bigger than A4. The cover sheet contains the number of the corresponding data set and selected bibliographic data of the article. These prints are also placed in ring files.

In addition to this reproduction procedure some printing on demand is done when something has to be printed at short notice. For this purpose a special software routine was developed. After input of the index term of one page the article ordered will be completely printed in less than 5 minutes although our hardware is not optimized for this job.

Results

Up till now approximately 3 million sides have been scanned. The daily print run is at about 4000 pages, corresponding to more than 500 articles. This probably makes us one of the biggest users of a digital recording and reproduction system, with a resolution of 400 dpi, in the world.

Since the journals containing the most information were scanned first more than 80% of the journal requirements are already provided for by facsimile print-outs.

The integration of the facsimile method into the existing editorial process has taken place without any problems. The printed working materials have been readily accepted by the scientific staff. The acceleration in output of fine data corresponds to our expectations.

The procedure has proved itself within a short time and it is effective and economic. As to the choice of the FileNet system we can, looking back, only congratulate ourselves. There have, of course, been a few small problems but none which could not be solved.

Recently we have installed a new Juke-box, holding 288 WORM disks, which uses the newest optical disk drive from Hitachi and has a capacity of 7 GigaByte per WORM disk. This gives a total capacity of about 2 TeraByte which corresponds to more than 9 million pages — a memory reserve which will serve for many years to come.

What, in our experience, are the most important advatages of a digital archive over a conventional library?

- Nothing can be lost.
- No serious accessing problems occur.
- Access requires few personnel and may be fully automated.
- The quality of reproduction is much better than that of photocopies or microfilm reproductions.
- The images may be transported as electronic files.

A new project

I would like, as I said before, to comment briefly on one of our newest projects which seem to me to be especially interesting for this session.

The newest project in preparation is the implementation of an external document delivery service. This means, we are planning to open our literature archive to users who are not members of the Beilstein Institute.

As the FileNet system can be connected to all types of the generally used networks we can send images from our archive as electronic files to a customer who may be located far away. In principle this project possesses no great technical difficulties as it is designed mostly around existing, well tested, components. One can envisage a service with the following characteristics:

- fully automatic operation
- 24 hours-a-day service
- delivery with 5 minutes of receipt of the order
- delivery of the article directly to the desk of the person who has ordered it

The main problems are, neverthless, the legal aspects of copyringht. We have spent a lot of time trying to come to agreements with publishers. I hope, we will be able to solve these problems and install this delivery service soon.

We would like to acknowledge the generous support of the German Ministry for Research and Technology for the first phase of our facsimile project.

I would particularly like to thank Mr.Hartmut Müller, of the Beilstein Institute, for his excellent development of our user software. He made himself familiar with the FileNet specific programming language WorkFlo in a remarkably short time and quickly managed to program all the functions, that are needed.

Thank you very much for your attention.

Spatial Development and Disposition of Sepvices of the State Lenin Library of the USSR

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At present the Lenin State Library (LSL) is accomodated in territorially dissociated buildings: the complex of buildings in the centre of Moscow, opposite the Kremlin, the Branch in Khimki, Moscow Region, and some buildings, located in different parts of Moscow.

Among the buildings occupied by the LSL today are buildings, which have been built especially for it (the buildings designed by architects V.A. Shuko and V.G. Gelfreich in the centre of Moscow, the Khimki Complex), untenantable houses and former dwelling houses, which are adapted or not adapted to the needs of different services of the Library. The insufficient resources, allotted to the Library, do not permit it to construct new buildings and complexes in the necessary volume. Hence comes the necessity to adapt dwellings houses and public buildings, passed over to it, fot the storage of stocks, for reading halls, for the keeping of equipment and for offices of the staff.

The base of the LSL is identified with the complex of buildings in the centre of Moscow, and prospective designs of its spatial disposition are connected precisely with this territory.

The preservation of the entire complex of the Library's buildings in the centre of the city will make it possible to transpose its unique collections and the reference-bibliographic system with the least losses and retain the main advantages of the Library — its universality and entity. This territory has some reserves on the streets in the neighbourhood of the Kremlin and the Arbat Square for the construction of new buildinds and the development of the adjacent buildings, measures which will in all make it possible to increase the existing premises (over 100 thous. square metres). This problem is being solved on the stage-by-stage basis, and the transposition of services within the boundaries of a single, rather limited territory, will have to be flexible and modile. It will also be realized as economically as possible.

The preservation of the present location of the LSL on the existing territories with their subsequent extension within the radius of the adjacent areas is propective from the stand of the cultural and historical development of Moscow, and the idea of creating here and integral reserved area, which would include monuments of history and architecture, theatres, museums, and other cultural institutions.

The gem of the Library's buildings is the Pashkov House (architect Bazhenov), set up on the Vagankov Hill, near the Kremlin in 1780s. In 1849 some wings were added to the House, and after the State bought the mansion it was turned into the Rumiantsev Museum with a library attached to it. Later a second storey was added to the main building. The Rumiantsev Museum was inaugurated in 1862. A part of the Mansion was given to the library (the LSL of today). In the course of restructuring of the building, conducted in 1930-1950, the large reading hall in the central part of the building, the reading hall in the wing, and spacious basements and the «iron depository» for 3 mill. volumes, which was added to one of the wings in 1912-1914, remained untouched. Today the Pashkov House is being restored and reconstructed and its interior, pertaining to the second half of the 19th century and the beginning of the 20 th century, is also being restored. Unfortunately different limitations, regulated by State building normatives, made it impossible to accomodate the reading hall in the central ceremonial hall and this forced the library to use it as a conference-hall. After the reconstruction it is planned to accomodate the Book Museum and the Museum of the Library in the wings. The church, which is located in the yard of the Pashkov mansion, will after restoration be used as a display hall. All this creates favourable conditions for the preservation of the architectural ensemble and ensures the continuity of the principle of wide availability of the Rumiantsev Museum, the first public museum of Moscow.

The main buildings of the LSL, erected some decades earlier, were calculated to hold 10 mill. volumes and have a thousand readers' places and have completely failed to meet contemporary requirements both in terms of volume (today the LSL holds over 38 mill. documents, and the need in readers' seats exceeds the exixting possiblity by 3-4 times) and technical state, which is pronounced to be critical. Within the entire term of existence the architectural complex, capital repairs of the buildings and technical installations were never performed. The technology of library processes is actually not equipped with any modern technical means. All this calls for the reconstruction of the LSL.

The concept «reconstruction» of the LSL covers many different kinds of work: the reconstruction and restoration of the unique monuments of architecture — the Pashkov House and the buildings of the Library, designed by archtects V.A. Shuko and V.G. Geifreich; the building of a new depository with the use of some elements of the archtectural monument: house No. 19 on the Marx-Engels

Road, (10 thous. sq.m of floor area); the adaptation of former dwelling and untenantable buildings, which stand in the neighbouring block; the construction of a new building in Yanyshev Zane (floor area over 50 thous. square metres).

The reconstruction of the buildings, which were built in 1936-1958 with a long interruption in war years, according to the design of architects V.A. Shuko and V.G. Gelfreich, is planned for 1991-1996. The aim of this reconstruction is the expanding of the readers' area to 2300 seats; full technical re-equipment of technological processes; the improvement in terms of comfort of the readers' service and the working places of the librarians. Mainly the readers' area will be housed in these buildings.

When this reconstruction was being designed, each component of the complex of buildings (Pashkov House, Shuko-Gelfreich buildings new buildings) was viewed autonomously, as a separate unit of architectural, restoration and construction works. In these conditions, the technological interaction of the Library's divisions was supported by the systems of telephone, TV and transport communication, frequently without due regard for the technological interdependence of various library procedures. At the same time it became necessary to create duplicating services, and return-accession routes of document flows. When working on the design it was found necessary to increase the number of connecting tunnels in the pedestrial zones of readers and employees. However the issue of rational communication between different buildings and areas of the territory was not completely resolved and this problem needs to be further developed.

The aim to realize the reconstruction of the existing buildings and the construction of new ones without closing down the Library determined the complex character and importance of solution of technjlogical issues of operation of the Library in the period of reconstruction, and of the creation of technologies, which guarantee the continuity of the processes of acquisition and processing of collections, and the servicing of users in conditions when the collections, readers' and employees' areas are being transposed all the time.

The new building is intended to accomodate interconnected and successive library technological processes, which are realized on a centralized basis for all the Library's divisions (for acquisition, inner-Union and international exchange, cataloging, indexing and the production of data banks and databases, official card catalogs, union catalogs on different carriers) and for the specialized divisions for documents of various types (maps and atlases, printed music, official publications, etc.).

The Supreme Soviet of the USSR has approved the suggestion concerned with the prospective transposing of the Library along the nearest streets, beginning with the building which is situated opposite the Kremlin. The area, occupied by the Library's buildings will be bordered by the Alexander Park — Kalinin Prospekt — Borovitsky Square — Frunze Street — Arbat Square. The development of this territory will permit the Library to extend its readers' area and ensure wide availability of the LSL and promote its activities of a public cultural centre.

The development of the Library in the centre of Moscow will be realized through the development of the historically valuable buildinds, which are located in this area, and the construction of new buildings. Some buildings have already been passed over to the Library. Some of them are already being used by different services, while others will be restored and reconstructed and made suitable for the accomodation of library collections, reading halls, equipment and working places of the staff.

The general principle — to preserve and restore buildings, which have historical and architectural value, existing in the country today, has its own disadvantages when applied to the adaptation of such buildings for the needs of the LSL. These difficulties include the need to coordinate designs with the State agencies, which control the preservation of monuments of material culture in keeping with the order established in the USSR, difficulties involved with the re-equipment of old buildings such as the changing of technical communications, the assurance of the temperature, humidity and security regimes which are necessary for conservation of library stocks and the necessity of making a multi-factor systemis analysis of the adjacent dwelling houses and public buildings, and the estimation of the possibility of using them for different services of the LSL. The requirements of the Library, applying to the reconstruction and restoration of the main buildings of the Library, also apply to the adaptation of the Library for the needs its non-service rooms. One of these requirements is the preservation of the historic architectural environment, the socio-functional infrastructure of the centre of Moscow and of certain functions of the LSL in this part of the city.

The resolving of issues involved with the reconstruction of the LSL and its development, calls for coordinated efforts of specialists in different subject fields: architecture, construction, archeology, geology, design, environment formation, library and information technology, etc.

The adaptation of buildings makes it necessary to change the technical equipment. This leads to the changing of former architectural-plan solutions since the old architectural forms frequently impede the creation of modern technologies.

The complex of the Library's buildings located in Khimki, a town in the Moscow Region, was initially intended for the depository part of the stocks, which is rarely demanded by users. However, the overload of the main buildings in the centre of Moscow forced the LSL not only to transpose the depository stocks to the Khimki depositiry, but to organize a stock room and reading halls for newspapers and dissertations there. The construction of this complex is conducted on a stage-by-stage basis. The remoteness of the Khimki depository from the main body of the LSL and the centre of Moscow makes it difficult to maintain permanent technological relationships between the different divisions. At present two phases of construction of the complex have been completed and the construction

of the third phase, which will provide storage space for 6 mill. printed items and 2 mill. microforms, has been included into the plan. This phase envisages the construction of buildings for the conservation, restoration and copying of documents and for the computer fleet. The final fourth phase is involved with the accomodation of the growing stocks of the Library.

The territorial disunity of some of the Library's buildings stipulates the complexity of the spatial-technological horizontal and vertical relationships between different areas and divisions of the Library and makes it necessary to work out optimal routes and schedules of movement of orders, books, information flows, users and employees within the buildilgs and across the ground and underground areas between them. The design of arrangement of functional zones is realized with due regard for the specific character of technological processes, technical equipment and relationships of each division of the Library. The need in buildings of a certain type, demands made of the technological, physical and psychological environment and comfortable conditions for work are also reckoned with.

The reconstruction, construction of new buildings, the spatial development of the LSL should be realized in conditions of strict observance of the principle, which holds that all its functional zones in different buildings, make up a single technological entity, which should be ensured by technological communication based on modern technical means.

To my thinking, it would be very useful for us to discuss with you, our esteemed collegues, our plans and problems connected with the reconstruction of the LSL. Your professional experience will be very valuable.

Principles of Functional Library Building Planning

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One of the primary responsibilities of any librarian is to assure that society's investment in its bibliothecal resources is spent wisely. That responsibility is the root source of the term "bibliotheconomia" which is used in many languages to define our profession. At no other time in a librarian's life is he or she likely to be involved in the commitment of a greater amount of society's resources than when a new library building is being developed. The occasion provides us a rare opportunit to practice this virtue of qood stewardship.

Economy in library building planning should manifest itself in several ways, of which this paper will concern itself seriatim with but three. These will be: (1) in the construction and operation of new builbings; (2) in the facility with which new builbings can be used by patrons; and (3) in the ease with which they can be adapted as needed by changing environments.

1. *Economical Construction and Operation.* In ancient times most libraries were associated with temples or palaces, and as a result they tended to be housed in very grand edifices, a tradition of which vestiges remain with us still. Certainly if a society today, through its normal process of decision-making, concludes that it wishes to house its library in a palatial or sumptuous structure, it has every right to do so. Librarians, however, know that normal library functions can be performed just as effectively in builbings of humbler and more utilitarian attributes as they can in palaces. This is not to say that library buildings should not be comely, or handsome, or even beautiful, but rather that the beauty of a building does not dependent solely, or even primarily, upon its opulence. Throughout the planning process therefore librarians should keep alert to opportunities to keep costs reasonable.

One category wherein library building costs in some parts of the world may, in recent years, have run higher than necessary is in the formulas and criteria used to calcilate their requisite sizes in the first place. Most of the research upon which today's library standards have been based has been conducted in the West, and they are therefore likely to be limited in their relevance to Western environments. Yet in many other parts of the world the same formulas are being used for planning buildings without first determining whether or not they also fit local circumstances. The concerp of "personal space", for example, upon which librarians base table sizes and floor area per reader, was pioneered in the West, and little subsequent ivestigation of it has been made elsewhere. Although it is widely recognized that the requirements of "personal space" vary from culture to culture, many — perhaps even most — other parts of the world continue to use Western-based space standards in their library planning, resulting sometimes in buildings that may be too large, or too small, for local need. This is an unintended, but nonetheless deleterious, kind of bibliothecal imperialism that should be quarded against.

Obviously the matter of building cost comes early into play in the design and construction of the biulding itself. Buildings with unusial shapes — curvilinear or polygonic desings, for example — normally cost more to construct that simple rectangles, and parenthetically they are also much more difficult to utilize efficiently. Buildings with low ratios of assignable to gross space — i.e., with overlarge lobbies, grand staircases, or imposing vistas — will likely cost more to construct than more efficient designs. Often monumental featires — such as broad podiums, high ceilings or atria, as well as bell or clock towers — will drive up the cost disproportionate to its usable space. Obviously the use of expensive construction materials, such as marble for example, makes a project more expensive than it needs to be to perform its library functions satisfactorily.

This is not to say that cheap building materials are uniformly more appropriate than expensive materials. Sometimes quite the reverse is true. Indeed attention solely to the construction cost of a library building project can often result in long-term dyseconomies. The most economical decisions are likely to result instead from a review of the "life cycle" costs of different materials. What materials, in other words, are likely to cost least in terms not only of their original installation but also of their long-term continuing care and maintenance, the anticipated frequency and cost of their replacement, and the likelihood of their incurring other related costs?

It is widely recognized, for example, that a building that uses incandescent lights instead of fluorescent will cost more to operate because of their higher power reguirements per lumen. However, because incandescent light also generates more heat than fluorescent light, its use also creates a secondary power cost for the operation of a building's air-conditioning system, and that secondary cost is sometimes overlooked. In the matter of floor-covering, there are many hard-surface materials that will last longer than carpet. In many Western countries, however, the substantially cheaper cost of cleaning and maintaining carpet over time more than offsets the cost of its more frequent replace-

ment. Such relationships as these are seldom universally true and should therefore be recalculated for different economies throughout the world.

Care should also be taken in planning library buildings to assure that they can be operated economically by staff. Again, since labor costs vary widely from one part of the world to another, these factors seldom apply universally but have to be differently calculated for different locales. As was mentioned above, buildings should be designed so that, other things being egual, functional areas with the greatest anticipated staff interaction are adjacent or nearby, either horizontally or vertically, with easy access between them. It is a startling but useful exercise to calculate the cost of poor building planning when even as few as ten staff members a day must walk a half-dozen steps farther than they would have to do with good planning. Over an estimated fifty-year lifetime of the building, society will have to pay those staff members to walk an unnecessary 1.244 miles!

2.*"User-Friendly" Library Buildings.* As librarians, most of us are quite aware of our responsibilities as stewards of society's library money and materials, as well as in the expenditure of our own time in performing our library obligations to society. We tend to be less mindful perhaps of our responsibility for assuring that society's time is also most profitably spent while it is exploiting library materials and services. Time, after all, is money, and the more time we can save our patrons in their efforts to utilize library resources, the more valuable our services to them will be. Indeed it may be that, given opportunity to provide a "unit" of efficiency either to our own operation of a library or to our patron's utilization of it, we should opt for the latter, although that may be an aspiration that is seldom fulfilled.

Perhaps the experience of the last decade in attempting to develop more "user-friendly" computer systems is bringing the universality of this lesson more clearly to our attention. Rapid standartization of protocols, increasingly tzansparent interfaces, and ever more meaningful "Help" menus have combined to make it much easier to teach at least rudimentary computer literacy today than it was only a few years ago. Libraries may present an analogous opportunity to contribute to library literacy. Instead of seizing this opportunity, however, it sometimes seems that we have allowed our libraries to become even more difficult to use than they were before. Perhaps we lack a "profit incentive" to make libraries simple to use; perhaps our salaries should be determihed in part by how easy we make our systems for our patrons to exploit. Toyota and General Motors learned long ago that unless they made their automobiles so simple to drive that any numbskull could learn to operate them, they would go bankrupt. Should libraries do less ?

There is no occasion in a librarian's career when we will have greater opportunity to simplify our services to patrons than while we are planning new buildings, because everything we do comes up for reexamination at such times. The assessment of the "user-friendliness" of a library indeed beding with a building feature, namely its front door. The entry should not be so monumental as to awe people or to discourage them from entering. Entries should be constructed at least partially of glass so that people can see into the building before entering and reassure themselves that there is nothing threatening in there. In parts of the world where traffic bears to the right, it is natural for people to expect to enter a building on the right and vice versa, yet every year new librarias are designet in violation of that simple principle.

Once inside a library building, moreover logic and the flow of patron traffic should similarly determine the location of services and facilities. If a library wishes to emphasize its reference or information service, that desk is most easily found by entering patrons when it is situated immediately inside the door and on their right in rigthward bearing countries or their left in other countries. In open-shelf libraries, the check-out counter is likely to be the last place a patron stops before exiting the building, so in rightward bearing areas it should be located immedately adjacent to the entry and on its left, facing and opposite the reference service. In a lobby laid out in this manner, cross-traffic is reduced and congestion is minimized. The locations of other library service points should also be similarly determined in accord with such principles.

Although, historically, libraries seldom used directional sings to good advantage, they have improved greatly in the last decade and are now rather generally recognized as essential appurtenances in a well conceived building. In American libraries, however, directional sings too often bear texts written not in the vernacular of the average patron but rather in the professional jargon of librarians. Our sings say such things as "Reference" instead of "Get Help Here" and "Circulation" instead of "Check Out" If these signs are to fulfill their purpose, they obviously must communicate with our lay users, and in planning new buildings we have excellent opportunities to consider redesignating certain of our activities with terms that all will understand. This situation may exist in other lands as well as in the United States.

The planning of a new building also provides good opportunity to consider whether or not some of our past practices continue to be in the best service of our patrons. For example, it is not uncommon for some libraries to keep current issues of periodicals in one location and bound files of the same periodicals in another to simplify their administration. The library may wish now to ask itself if, in the interest of simplification for the patron, the two files might better be merged and current issues kept hereafter in a box at the end of the bound file. It is one fewer exception that a patron must keep in mind when trying to use the library. Also, libraries sometimes develop special topical collections which are then shelved outside of classification order. If, as seems likely, such special arrangements mean that books so shelved may be "lost" to certain readers, continuation of the practice may be questioned at the time the new building is being planned.

2. *Planning for a Changing Information Environment.* In 1966 a 20-page booklet was published by the Edicational Facilities Laboratories in New York entitled The Impact of Technology on the Library Building. It concluded that "technological developments in the foreseeable future will not alter radically the way libraries are used", and for at least two decades thereafter that conclusion proved to be largely accurate. If such a publication were to appear today a quarter of a century later-and a new one is greatly needed today — it would have to be much, much longer, and its conclusions would have to be very, very different. As we librarians are painfully aware, the ways in which society is now developing packaging, accessing, recombining, and purging information are changing radically and at great speed, and it is not wholly clear to any of us just how the library buildings being built today should be modified in order to accommodate these changes.

It appears increasingly likely that advancing communication tehnology will hasten two fundamental but related modifications in society's information activities that will be of great significance to library building planners in the years, indeed even the months, immediately ahead. These are:(1) a growing ability to "bring the library to the patron" rather than continuing to expect the patron to come to the library; and (2) a growing electronic ability to access information records quickly wherever on earth they may be in addition to accessind physiccally the documents on the shelves of in addition to accessind physically the dociments on the of one's local library. Although the library profession appears to be in broad general concurrence that these changes are occurring, there does not yet appear to be clear consensus regarding the likely timetable for their advent.

Library building planners cannot, indeed should not,decide the rate of speed at which these capabilities will arrive. They do know, however, that library buildings constructed today will be used for a long, long time — probably few of them for less than a half century and many for cosiderably longer than that — and they ask themselves how to plan those buildings so that they can be economically adapted to accommodate changing needs as they arise. They look at the groving numbers of information users who are already doing their own end-user searching in their homes and offices. They see libraries that, a year ago, were using their Fax machines solely in lieu of interlending but are now using them also to transmit documents to patrons'work stations, wherever they may be.Does this indicate a need for fewer seats in library buildings today than last year, or does it portent that fever will be needed five years from now, or twenty years from now, or fifty years from now? As society's "information format of choice" continues to shift from the codex book to electronic storage, how are we to project the number of conventional books our new library buildings should be able to accommodate on their shelves in five, or twenty, or fifty years?

Unfortunately for planners, the literature discussing the myriad factors that will determine these developments is spread over so many branches of knowledge and is so extensive that probably no one can keep up with it all. There has, however, been some useful recent literature focusing just on the building implications of these factors[1]. This field is changing so fast, however, that a major problem for planners is simple keeping abreast of the current state of the art. Even by the time we know of a development appropriate to this discussion, that development could already be obsolescent.

However, at least two discrete but related lessons for library building planners, both involving "flexibility", recur in the literature. The first of these is that we must make sure that the library buildings we build today are what are called "smart" buildings. A "smart" building should have, as far as possible, all of its communication and electronic control systems integrated at the time of desing and its "wire management" reguirements either installed, or accommodations for their subseguent installation built in, at the time of construction. All of a building's power and data transmission components, even for such diverse elements as elevators, fire alarms, public address, air handling, a satellite antenna perhaps, must be considered in conceptualizing a smart building. From a purely design standpoint, it is easy to develop a smart building by simply installing universal grid systems of conduits in all floor slabs and in multiple risers, even though most of them may be empty at the time of initial occupancy. Empty conduits, however, cost money and risers use up potentially valuable floor space, so again planners are challenged to do "enough" but not "too much" to assure that there is adequate flexibility to allow the future adaptation of space being designed today.

Still another kind of flexibility must also be sought by today's library building planners. That is flexibility that will permit the building's floor space to serve not only the purposes that are visualized for it at time of opening but also to meet unanticipatable future needs. In so fast a changing environment it would be arrogant to assume that we have the prescience to foretell how we will have to use library space at some future time. We must design library space to meet today's needs but with the flexibility to permit its economical adaptation as needs change. To achieve total flexibility would probably cost more than we have available to spend, but we must do our best. It should be possible, for example, to install floors at the time of construction that would be strong enough to support the maximum weights of any reasonable library activity. We should also be able at the outset to install air-handling systems that could accommodate throughout the building any known library activity that future need might dictate. Perhaps we can do the same with ceiling lights.

And in the last analysis , it seems wise for us to attempt to design today library buildings that can be easily adapted to nonlibrary purposes entirely, if society's information practices change so radically during its lifetime as to necessitate its decommissioning as a library. There are no doubt thousands of structures in use in the world today that were originally erected to house libraries bat whish outlived their utility for that purpose and were modified to serve other societal ends. It that has happened in the relatively stable information environments of the past, it seems certain to occur

in the even more kaleidoscopic library world of the decades before us.

ENDNOTES

1. See for example R.W.Boss, *Information Technologies and Space Planning for Libraries* (Boston: G.K.Hall, 1987), and P.D.Leighton and D.C.Weber, "The Influence of Computer Technology on Academic Library Buildings", pp. 13-30, in *Academic Librarianship Past, Present, and Future*, ed. by J.Richardson, Jr. and J.Y.Davis (Englewood. CO: Libraries Unlimited, 1989).

Performance Assessment: Today's Confusion, Tomorrow's Solution ?

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Management Information

Abstract

The confusion surrounding performance assessment is discussed in the context of inappropriately used and imprecise terminology, linguistic and cultural differences, lack of clarity over methods/implementation, false expectations and conflicting requirements of individualsm and comparability/compatability. Manuals, standards, peer group work at local, national and international level, and govermental agency suppo.: and assistance where appropriate will promote clearer undestanding and suggest an optimistic future for the development of performance assessment.

BACKGROUND

The quest for quality, accountability and justification of service is demanding increasing attention around the world, both in those countries which are deprived of resources and in those which are relatively rich and could be described as having a sophisticated information and tecnology base. Within this economic climate, during the rest of this century and into the next, library and information professionals will face considerable challenges both in meeteng and satisfying the requirements of individual, institution and state.

The above may be encapsulated in the all-encompassing concern for 'value for money'. This is a short phrase which convers many facets: for example from one angle it can be viewed as the paymasters' desire to drive down operational unit costs to such an extent that quality is endangered; from another it could be seen as wish to ensure that the customer receives, through contract, charter or guarantee, a qualidty service which by its very delivery will attract the appropriate level of resource.

In this uncertain environment the need for excellent management, equipped with a range of modern and innovatory skills wich are capable of being deployed as appropriate, is of major importance. Library and information professionals are not exempt from these managerial requirements.

In this paper an overview of relative position of performance assessment is examined as a managerial tehcnique which can form part of the skills which the information professional will have to consider in the pursuit of service excellence. As indicated in the subtitle, the subject is analysed to the paper in the context of whether the profession is currently in a position to capitalise on the possible advantages of performance assesment, and whether there is confusion which might obscure future advances. Ways in which the subject may be developed are also considered.

The first question to be posed is 'In the confusion in the profession about performance assessment?'. The Library and Information Statistics Unit at Lounghborough University has reviewed the international literature on performance assesment. Three of their papers shed some light on recent literature. In 1988 Goodall (1) reported:

> "It would be wrong to suggest that no real progress has been made in the field of performance measurement but one cannot help feeling that the research has been of a circular nature and although plenty has been written on the subject there is a suprising lack of originality in the writings. The research appears to be collateral rather than cumulative."

Cope's annolated bibliography for the period 1988-1990 (2) broadly confirms that percertion, but

there has been some evidence to suggest:

(i) that there has been more consideration of practical applications at the expense of theoretical, and

(ii) that manuals of performance assessment have gaining favour. (This is discussed later in the paper).

The most recent literature suggests therefore that increasing attention is being devoted to the subject, even though the commitment of most of librarians around the world has yet be secured. For example Ralli (3) stated in 1987 that performance assessment "had not impinged in any dramatic way on the consciousness of many librarians here in Australia", and equally the third Library and Information Statistics Unit's article by Cope (4) in 1990 identified from a survey of public librarians in Britain, that the number of libraries active in performance assessment "is growing only slowly". It would be fair to say that many public librariand in Britain were awaiting the publication of the Office of Arts and Libraries performance indicators manual (5).

The professional literature in the last twenty-five years, shows that most attention has been focussed on performance assessment in the public library sector but that academic and national library sectors have been receiving increasing attention. There has been study of special library world. There lead is being taken by countries of the developed world while sadly parts of the developing world are still trying to grapple with provision of basic statistical data.

Overall the current situation suggest an uneven distribution of attention (even within sectors) a reasonable level of research, and, increasing amounts of time devoted to applied research. It might then be said that the subject of performance assessment is relatively straight forward and understanlable. However, a comprehensive, careful and detailed reading of literature would not necessarily inspire the committed professional librarian to action, assuming, that is, that months of time could be devoted to the task.

Why should this be?

Part of the answer appears to be that there is some international confusion about the subject which can be considered under five headings:

1. Terminology

In pushing the boundaries forward, and in the desire to achieve clearer more precise definition of what constitutes performance assessment, there has been a plethora of confusing terminology in which the same concept is given different terms, or different concepts are given the same terms. Hence we see, for example, the terms 'output', 'intermediate outputs', 'outcome', and 'final output measures' being used by some to imply subtle differences (especially in academic debate), while others use them rather more indiscriminately, mainly, one suspects through lack of appreciation. This can cause endless confusion. Even the term 'performance assessment' itself is not immune from various misleading or inappropriate uses. The terms 'performance measure', 'performance indicator' and 'perfomance assessment' are interchanged, widely misused, and, it is suggested misunderstood. It is important therefore to clarify the terminology of the subject at the outset: —

Performance measure — direct quantitative statement about activity.

Performance indicator — does not measure an activity directly but measures factors which it is belived are linked to activity.

Performance assessment — is the generic term which includes both of the above

2. The effect of linguistic and cultural differences

The lack of expressiveness in languages can create confusion. For example, a discussion of performance will inevitably require of words 'efficiency' and'effectiveness' but in other European languages alone, there is no exact equivalent: 'efficiency' is doing something well whereas, 'effectiveness' is doing the right thing well.

There are some languagies in which the word 'performance' cannot be translated. Even differences can be apparent. For example in the United States of America the American Library Association published a manual entitled 'Output measures' (6) yet on the same subject in Britan the manual was called 'Performance Indicators' (5).

Unintentionally barriers can be created between countries wishing to learn from each other. The professional librarian first has to disentangle language before concepts can begin to be understood. Perhaps one way to overcome this is to pay more attention to international standartisation especially of definition. (This is discussed further in this paper).

3. Factors affecting implementation

There is some confusion in librarians' minds as to how to apply the various theories of performance and to which groups. There is a lack of clarity in thinking and the question "What is the reason for performance assessment?" is not always asked or understood. The development of assessment programme. If it exists, is often not segmented, prioritised or targeted according to the major

groupings of funder/sponsor, customer/user and the librarian/ information specialist — the techniques of marketing could well be employed. One also detects some hesitancy from professionals, because it is widely advocated that performance assessment should be applied to whole of the library system; and however praiseworthy this might be, the message that it can be applied selectively to parts of service does not always seem to be accepted with ease by the purits.

4. False expectations

The increasing status of the subject — it now commands whole issues of jourlals and is increasingly the focus of conferences — may have given performance assessment an exaggerated place of importance and made those who rushed to use it whith enthusiasm sceptical of its worth. The falure to understand that one of its key roles is to *identify problems* clearly and assist in making judgements could be a potential source of confusion.

5. Individualism versus comparability/compatibility

This paper has considered the subject of performance assessment in the context of professional librarians' attempt to provide a *value for money service of relevance* to their own organisations. Thus data is collected within the institution and for the institution so unique trend data will be accumulated over a number of years. However it be argued that performance assessment can benefit further from comparable data collected in other similar types of libraries and that this approach would enhance the judgement process.

Ron Pybus, Director, Wiltshire County Council Library and Museum Service (7), who has shown considerable commitment to performance assessment, is in no doubt of priority:—

> "For years librarians' have collected and reported statistics to the Committee. ... In the majority of cases the only use we have made of statistics on a regular basis has been to see how busy we were yesterday or last year. We have rarely acted positively when statistics have been produced. If anything, our greatest action has been to use the figures to defend ourselves when Councillors compare us with other authorities' instead of accepting that they may help us in the figure to make improvements in the Service which will be appreciated by the public — our customers. It really does not matter how we compare with another Authority, what masters is the quality of the Service to the people of Wiltshire. We have hardly ever used CIPFA statistics* in a positive way, mainly because they only relate to the Service as whole and are a relatively useless tool for the management of different aspect of the overall Service".
>
> * The CIPFA Public Library Actuals and Estimates publications are produced annually and are two of the main sources of published statistical data on libraries in Britan.

There is then a conflict between the librarian who is confident that performance assessment data generated within the system alone is sufficient and the librarian who believes comparative data from similar types of library is highly desirable. In such circumstances the latter is dependant on the former who does necessarily have to oblige in collecting comparable and compatible data. After all, successful performance assessment demands that the data collected must be related to the *specific objectives* of the individual library service and, of necessity the profile and completeness are likely to vary from library to library, even within the same sector. Compatibility and comparability of performance information becomes increasingly difficult to achieve unless there is some co-ordinating central authority with statutory force. An overview for national purposes becomes more difficult if the statistical base becomes diffused or selective; a comparative data base may then rest in the hands of peer groups of librarians in the sector. The picture is further complicated by countries and goverments which promote market forces and a competitive approach. Such an anvironment use suggests that individual authorities or bodies might not wish to reveal information with could be of potential to competiors. This may partially explin why so little progress has been recorded in the professional press about the special library sector.

Even if the collection of the same data sets was considered desirable and could be guaranteed, one would still be faced with the pressing requirement to ensure that the application of uniform collection via standard definitions is not only understood but acted upon by the collectors of the statistics. Experience has show that those countries which have dutifully reflected this requirement have encountered problems — a recent example was in the definition -of the various categories of 'full–time student'. The inprecise definition resulted in the performance indicators associated with student numbers having little credence after some years of using them as a basis of judgement.

REMOVAL OF CONFUSION

A daunting array of problems, some more applicable to certain contries than others, have been catalogued which would, should they remain, cast considerable doubt tomorrow's potential to make performance assessment easier to assimilate and act upon.

However, recent developments at national and international level, suggest that the library and information world is giving serious attention to the understanding of the concept, developing and imp-

lementation of performance assessment.

More particulary those developments are:—

1. Manuals

The first, and perhaps one of the most significant developments, has been the publication of detailed performance assessment manuals for use the librarian and information worker. This trend highlights different cultural assumptions or philosophies in different countries, even though the language is the same. In the United States, the latest edition of Output Measures (6) concluded that the best way to advance thinking about performance assessment in public libraries was by way of recommending a select core group of performance indicators associated exclusively with library use. This reasoning was based on the experience of the reception of previous American manual work which had sought to be comprehensive rather than prescriptive, but very democracy, it is said resulted in little progress because librarians were not be able to spare the necessary time explore fully the detailed mass of alternative methods. In effect the latest edition of Output Measures (6) manual could be deemed to act as a catalyst, that is, by suggesting only a small core group it encouraged the librarian to explore the recommendations and to devise their own alternative performance indicators.

In Britain by contrast, the Office of Arts and Libraries has promoted the concept of better management by initiating publication of 3 related manuals (5,8,9). The latest publication being the work on performance indicators known as *Keys to Success* (5). It includes an analisys of the factors which constitute performance measures and a reasonably comprehensive list of performance indicators. The publication is founded on the philosophy that managers should be able to select their own core list of performance indicators which most closely reflects their individuals circumstances. Furhter, in contrast to the American approach, the Office of Arts and Libraries will seek to ensure the promotion of the ideas by a series of meetings with librarians and local authority councillors, and by the production of training aids. Whatever the indivilual emphasis of these manuals they still have value not only as guides to types of performance assessment, but also to the methods which may be used in the collection and analysis of the data. (Sample questionnaires are included for example).

There has also been a discemible level of interest in applying a framework to performance assessment at an international level. Moore (10) for example has developed a manual (thanks to efforts of IFLA Section of Public Libraries and published by UNESCO) which recognised that suitability of performance assessment varies according to the type of country which wishes to undertake the work. The work offers two types of approach: at the one level it offers practical guidance to those in the developing world who do not seek an elaborate framework: at the other, it offers a more detailed and complex way forward for those who have already some established statistical data. The manual has been tested in the Swedish context and at an IFLA workshop in Stockholm in 1990 Anna–Lena Hoglund (11) was able to report: "we who have worked whith these measures for a year have been convinced of their value despite encountering a number of problems during the evaluation process".

2. Standards

The second trend is work in the area of standartization. The Intermational Standards Organization (ISO) will be publishing (1991) new and revised library statistical standards which will help to underpin an attempt to look for statistical comparisons across national boundaries.

The standards are: —

(i) International Library Statistics (ISO 2789).

(ii) Determination of price indexes for books and serials purchased by libraries (ISO 9230).

(iii) Statistics on the production and distribution of books, newspapers periodicals and electronic publications (ISO 9707).

Hoel (12) has described the adaptation of the International Standard ISO 2789 (draft), International Library Statistics with a view to harmonisation in Denmark, Finland, Iceland, Norway and Sweden.

The strong interest in a standarsd on performance assessment can be established from events at the ISO Plenary Meeteng in Copenhagen in May 1991 at which the 11 participating contries represented on the ISO Library Statistics Committee (ISO TC 46 Sc8) underlined their commitment to the subject of performance assessment by voting unanimously for the following proposal which has been translated into a work item: —

> Proposal: Standard on Indicators library performance
>
> *The scope*: Libraries (acalemic and special libraries as well as public libraies) and authorities (state and local) funding libraries; applicable also an international level for comparison between libraries in different countries.
>
> *Purpose and justification*: It is proposed to study the feasibility of establishing a standard for indicators of library performance and if the result is positive to prepare an international standard thereby providing a tool for analysing and comparing the effecience of library services.

3. Group and sectional interest

The previous section showed how ISO had been contributing to the subject but it should not be forgotten that the climate of interest is being sustained by IFLA (and not exclusively by the Section on Statistics but rather more generally) and UNESCO. At national level professional associations are helping to clarify, promote, and sustain interest in the subject of performance measures as can governmental agencies. This can be seen by the fact that librarians in many countries now sense that *initiative* should begin with them rather than have inappropriate or unsuitable performance assessment imposed on them by their paymasters. Librarians have been gathering together in groups within sectors (for example, groups within higher education) to clarity and promote new thinking. These self–help groups can persuade each to participate in collection of imformation for good of all even though some of the data may not always be of direct relevance to the collector. This type of activity alone may not convince political masters, but within the broader context it may serve as a better educator and motivator than isolation.

TOMORROW'S SOLUTION?

If the solution for the purposes of this paper is seen as the eradication of the existing confusion through better understanding and education so that techniques and methodologies connected with performance assessment can be applied to the process of more informed management decision making, then there are clearly sings for optimism.

The differing requirements and objectives within individual libraries in one part of a sector, let alone a national or international dimension, will mean that the chance of successful models being produced are somewhat limited. There is, however, some evidence to suggest this concept is being promoted (14).

At present the elliptical debate of past twenty years or so is now being sharply focussed by by pressures from goverments both in general terms. (Exon and Eccleston work (13) on the development of a set of performance indicators arising out of requirement of State Legislation in Western Australia neatly illustrates the point) and in more specific instances such as the emergence of performance contracts at local authority level. The urgency is now more apparent even those short sighted librarians who steadfastly set their face against the whole concept of performance assessment will be encouraged to rethink their position by higher management which, by default, may threaten the enforcement of more unacceptable solutions. This is all the more worrying for those conutries which do not even have a secure statistical base on which to move forqard to the exploration of performance assessment.

Perhaps what now is needed is research which assesses the performance of perfomance assessment in those organisations which have attempted to use it to refine or develop their management thinking and set those findings against a control group of those who have not!

Alan MacDougall
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Status, Image and Reputation of Librarianship: Results of a Empirical Study

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0 INTRODUCTION

The Round Table for the Management of Library Associations [RTMLA] started in 1988 a research project into status, image and reputation of librarianship. During the IFLA conference 1989 the RTMLA presented the results of a study of literature and of a survey carried out among library associations in some countries in Southern Europe on this theme.

During this conference, Paris 1989, the RTMLA decided to set up a working group to give a follow up to the project. The working group concluded that empirical research had to be done to find "evidence" for the relative poor status of the profession and decided to do a comparative study and chose for a world wide survey as a source of information between others (existing data, interviews etc.).

Problem

In the words of the RTMLA the problem was stated as follows: "The general image by the public of the profession and the practice of librarianship is poor. The reputation of the profession is low and as a consequence the status of workers in it is also low, made manifest by poor salaries and inadequate conditions of service. The picture is not standard worldwide but it is to varying degrees, and it is fairly accurate for most countries."

Goal

The RTMLA wants to identify ways, and over a longish time-scale, to remedy this situation in the future. Purpose of the project is to discover the real reasons for the poor status, reputation and image and having discovered these, for the RTMLA to advise IFLA's Professional Board on:

— what activities IFLA should undertake to assist its member library associations to undertake nationally to improve the situation;

— what activities Unesco's PGI should support;

— what activities need to be adopted by professional workers themselves in the LIS sectors;

— what activities other organisations need to be involved with, in order to remedy the situation.

The research department of the Dutch Centre for Public Libraries and Literature (NBLC) was asked to develop a set up, a detailed research plan, time table and so on and was placed in charge of the implementation of the investigation. The research plan enclosed an ongoing study of literature, analysis of existing data, a worldwide survey among the IFLA member library association; expert interviews in different countries would have to provide some extra, qualitative information on the subject.

1 PRELIMINARY REMARKS

Corporate sense

There seems to be no other group of professionals which pays so much attention to its status and image as librarians (a chapeau term for a variety of employees working in the library & information services). Even a superficial survey of the literature reveals a staggering amount of articles on the subject (the study of ms Billedie is the prove). Almost all authors dealing with the subject agree that status is low. However it is not quite clear if we are dealing with an axioma, an assumption, a collective longlife experience or something else, it seems to be the bare truth for the professionals concerned.

Persistent problem

The literature also reveals that the problem is not a recent one. It is rather a persistent one. Librarians are concerned about their image and status for a very long time. This raises the question why librarians did not succeed in solving a problem which seems to be such a vital and crucial one. It appears to be a "mission impossible". If nothing has improved over the years, regardless of the tremendous attention the perceived problem has got, why still bother? Crashed plans, wrong action, no action at all, lack of money, no creativity? Lack of recognition? Did librarians back the wrong horse or what? If librarians feel undervaluated and descry a severe lack of recognition of the authorities as well, it means that something is wrong in the communication. And communication is their job. The core of the profession is "communication". Librarians can not fail in that.

Desired status

Since the problem of status, image and reputation is felt to be longterm problem, the question arises "which status would the librarian like to have?" Moaning about the status and the poorly developed image, the severe misunderstanding the profession is confronted with, is one thing. But this raises the question "what, which who do you want to be?" We did not find many outspoken ideas about the desired future status except from "higher salaries".

Market

Librarians nowadays have to operate in a open market place in a way. The times when librarians lived in a monastery and the librarian had his own domain are past. Having a mission without an audience, to be transferred by persons who are more interested in their status than in their performance or the clients to be served, does not work. It is like trying to sell a product without a market. The four fat walls of the library offer safety. If librarians do not want to be a victim of their own ideology they have to expand their control from books to floating information. They cannot turn away from the vicious outside world too long. To become outward directed is a necessity. For librarians to stick to controlling skills, is like committing suicide. Another world, another reality. The relative autonomous development outside the walls of the library goes on. Changing the name of the profession is just a cosmetic operation, as is adding the "I" of information to the name of a association.

Recognition

The service of the library is highly approved by millions of people, but it is taken for granted. Librarians are never object of a public debate. Libraries, talking about financial cuts, sometimes are. Librarians never act controversially. They are just there, doing their job. They are not involved in "winning" and "losing", money or survival, life and death. They collect books, are involved with clerical processing and do not show nor pretend to be vital. But information is vital, they know, dissemination of information is vital to all of us. Librarians nowadays want to be the experts in this. They are occupied with mastering the ever growing quantity of publications. They are not occupied with reducing the amount of information into manageable proportions in a 100% client-oriented market way. So, communication is disturbed and both actors in the process are damaged. "Librarians nowadays just communicate frustration" I learned. They are more concerned with themselves than with clients. A special librarian is not special because he or she is working in a special library but because he or she is able to get the right information, in the right time in the right place in a tailor made way to those who are served. And it does not make any difference whether you are doing your job for disabled children or hiütech engineers.

32% of the librarians and informaton specialists agreed with the statement "more than half the tasks of a librarian require no professional education at all, this results in a low status". Another 11% is uncertain about this subject. So, a doubtful strong minority of 43% indicates a severe lack of selfconsciousness. The image is bad and is damaging the profession that hesitates to become a profession after all.

2 SURVEY

2.1. Facts & figures

Part I & II of the initial questionnaire were sent to more than 150 national associations in 90 countries. Part I had a poor response. Only 20 came back (22% of the countries) despite a number of reminders and summons. We should remark that the quality of the response (the number of answers and the way answers are given) lags behind our expectations. The data were not processed in the way we intended to do. Because of their number they could not be used for statistical analyses, nor for completing the picture in a descriptive way. This meant that we had to lean on existing data, like the Unesco statistics. The Unesco statistics concerning librarywork appeared - as we all know - not always reliable and are often a bit outdated as well. None the less we use them together with the new numbers and the information from literature as background variables.

2.2. Statements

Part II of the questionnaire (the statements) had a better response: 292 from 34 countries all over the world, except the Middle East. Among these answers were some of which it was not clear which association had sent them. Opinions appeared to be more easily available than simple facts or statistics. Nevertheless the response is poor. If considered as a quasi sample with a overrepresentation of respondents from western countries, it seems more useful to emphasize the qualitative information instead of statistical analysis. Such an analysis will lead (due to the poor and unbalanced response) to results that do not fit reality.

3 SOME RESULTS

Part II of the questionnaire was concerned with some well known common opinions and attitudes among professionals and laymen. It consisted of some questions about the general feeling "status is low". Seventeen statements, clichcBc's, ordinary opinions about "why status is low" and a little excercise in rating common opinions and rating the prestige of some other professions.

The five elements of Part II:

— general opinion on status in relation to type of library institution;

— agreement or disagreement with the statements;

— profile of the most important reasons for the low status in terms of the statements;

— results of sorting a series of professions;

— summary of comments.

3.1. General opinion

Since this project was started because of the common feeling that the general image of the profession and practice of librarianship is poor and as a consequence the status of the LIS workers is also low, the first statement the respondents had to state their opinion about was:

"The status of the profession of librarian is low."

26% strongly agree,

56% agree,

8% uncertain,

9% disagree,

1% strongly disagree.

So a overwhelming majority, 82% or four out of five librarians are convinced the status is low. There was no difference in opinion between men and women, apart from the fact that the 1% "strongly disagree" consisted of three women. There is a slight overrepresentation of respondents of Africa and South America in the category (strongly) agree and a little overrepresentation of Asia and North America in the category uncertain/disagree. Europe answered in line with the mean.

A second statement reads "Do you think that there is an important difference in the status of librarians (comparing those at the same level of employment) employed in different categories of libraries?" 74% held the opinion there was a relation between the status and the type of library you work in. Those who thought so were asked "can you sort the categories of libraries according to status"?

If the eight categories from "high status" and "low status" are numbered from 1 to 8 and these numbers are considered as "real values", the MEAN represents the average score of the libraries. The mean indicates the relative distance between the scores and forms a continuous ranking scale. The library with the lowest mean is on a average regarded as the library with the highest status. The scores on the statements in order of the MEAN.

(1= highest status, 8= lowest status)

	RANK	MEAN
National library	1	2.7
Higher education	2	3.4
Information services	3	3.8
Documentation Centres	4	3.8
Special libraries	5	3.9
Industrial/commercial	6	4.7
Public libraries	7	5.7
School libraries	8	7.2

3.2. Agreement statements

The statements and their abbreviations used in the tables.

Female image
1. The female image of the profession of librarian is a important reason for the low status.

Invisibility
2. The general public has hardly any knowledge of the work; this results in an low status.

Quality of service
3. The poor quality of the service in some libraries results in a low status of the profession.

Salary
4. The job of librarian is poorly paid resulting in a low status of the profession.

Volunteers
5. The large number of volunteers working in libraries creates a low status of the profession.

Marginal role
6. The marginal role libraries play in the development of the economy of the country results in a low status of the profession.

Cannot distinguish
7. Users of libraries cannot distinguish the librarian from other employees resulting in low status of the profession.

Money responsibility
8. The general public is unaware of the responsibility for amounts of money and personnel involved in running libraries, resulting in a low status of the profession.

Lack of funding
9. The small amount of government funding results in a low status of the profession.

Social responsibility
10. The general public is unaware of the social responsibilities of libraries for instance regarding the individual rights of access to information, therefore the status of the profession is low.

Dispensable luxury
11. A large number of the general public regards the library's services as dispensable luxury; this causes a low status of the profession.

Low expectations
12. Users of libraries have low expectations as to the quality of the services of libraries resulting in a low status of the profession.

Unemployment
13. The large number of unemployed librarians results in a low status of the profession.

Dull image
14. The general image of the character of librarians: strict, punctual, dull, etc, results in a low status of the profession.

Educational requirements
15. More than half the tasks of a librarian require no professional education at all, this results in a low status of the profession.

For students only

16. Large numbers of the public consider the library primarily an institute for youngsters and students, resulting in a low status of the profession.

Reading less

17. There is a general trend for the general public to read less, this results in a low image for the librarian.

The Mean represents the average score. A score of 1.9 signifies that on average the librarians agree with the statement (strongly agree =1, agree=2, uncertain=3, disagree=4, strongly disagree=5). So you can conclude that a statement with a mean between 1.9 - 2.5 is on average agreed with, about statements with a mean between 2.6 - 3.5 the respondents are uncertain. A mean higher than 3.6 signifies disagreement with the statement. This results in the following division of the statements:

number statement

agree : 2 8 10 4

uncertain : 7 3 6 9 1 12 11 14 16 17 15 5

disagree : 13

The statements in the category uncertain need a second look. If you look at the original scores on these statements, you will see that the mean, in most cases, is the result of a strong division of opinion among the respondents. Some of the respondents agree with the statement, others disagree, the result is a mean in the category uncertain. To correct this flaw we included the column PERC. AGREE.

The scores on the statements in order of the MEAN.

NR.	STATEMENT	STRONGLY AGREE			STRONGLY DISAGREE			MEAN	PERC. AGREE
		1	2	3	4	5			
2	Invisibility	101	147	14	22	1	=100%	1.9	87%
8	Money responsibility	72	137	40	31	3	=100%	2.1	74%
10	Social responsibility	63	141	40	41	3	=100%	2.2	71%
4	Salary	77	118	35	50	4	=100%	2.3	69%
7	Cannot distinguish	42	121	49	64	7	=100%	2.6	58%
3	Quality or service	45	118	42	63	18	=100%	2.6	57%
6	Marginal role	47	111	52	68	10	=100%	2.6	55%
9	Lack of funding	52	106	45	68	13	=100%	2.6	56%
1	Female image	36	111	51	64	23	=100%	2.7	52%
12	Low expectations	24	99	36	111	13	=100%	3.0	44%
11	Dispensable luxury	22	91	51	106	18	=100%	3.0	39%
14	Dull image	17	98	50	94	24	=100%	3.0	41%
16	For students only	21	84	43	110	27	=100%	3.1	37%
17	Reading less	17	77	50	115	27	=100%	3.2	33%
15	Educational requirements	23	68	32	121	4	=100%	3.3	32%
5	Volunteers	21	42	66	103	31	=100%	3.3	24%
13	Unemployment	9	25	51	134	49	=100%	3.7	13%

3.3. Most important reasons in terms of the statements

The respondents were asked to select out of the 17 listed above the (five or less) "most important" statements which they regard the most important causes for the low status of the profession. And, when chosen, to place these selected statements in their turn in order of importance.

There is of course a clear distinction between "agree" or "not agree" on the one hand and the importance on the other. But at the same time the chance that a statement is selected in the "top five" of most important reasons for the poor status increases if a strong majority agrees to the statement.

FREQUENCY OF THE "TOP FIVE" STATEMENTS

NR.	STATEMENT	ABS.	REL. PERC.	CUM. PERC.	PERC. AGREE
2	Invisibility	159	14	14	87%
4	Salary	110	10	24	69%
6	Marginal role	107	9	33	55%
10	Social responsibility	107	9	42	71%
8	Money responsibility	99	9	51	74%
9	Lack of funding	87	8	59	56%
3	Quality of service	77	7	66	57%
1	Female image	74	6	72	52%
7	Cannot distinguish	61	5	77	58%
11	Dispensable luxury	53	5	82	39%
12	Low expectations	52	5	87	44%
15	Educational requirements	46	4	91	32%
14	Dull image	45	4	95	41%
17	Reading less	29	3	98	33%
16	For students only	25	2	100	37%
5	Volunteers	21	2	102*	24%
13	Unemployment	8	1	103*	13%

* Due to round off procedure.

All statements were used to construct the private "top five" reasons. Some more than others. This frequency sheds no light on the different ranking within the selection of statements nor on the dispersion. The table below will.

RANKING OF THE 5 MOST IMPORTANT REASONS IN ORDER OF IMPORTANCE

NR.	IMPORTANCE HIGH---------LOW						
2	61	40	27	21	10	159	Invisibility
4	28	18	25	21	20	110	Salary
6	31	21	26	20	9	107	Marginal role
10	19	29	25	17	17	107	Social responsibility
8	12	28	34	13	12	99	Money responsibility
9	23	27	16	15	6	87	Lack of funding
3	15	14	17	15	16	77	Quality of service
1	20	13	12	11	18	74	Female image
7	7	15	12	14	13	61	Cannot distinguish
11	3	9	11	10	20	53	Dispensable luxury
12	3	11	14	17	9	52	Low expectations
15	11	10	7	6	12	46	Educational requirements
14	4	5	8	18	10	45	Dull image
17	8	5	3	6	7	29	Reading less
16	0	5	4	9	7	25	For students only
5	4	0	4	9	4	21	Volunteers
13	1	0	1	1	5	8	Unemployment

If the five categories from "most important" to "least important" are numbered from 1 to 5 and

these numbers are considered as "real values" and the dispersion is computed as well, hardly anything changes. Number 2 ('salary') and 3 ('marginal role') change places.

3.4. Sorting professions

The final question concerned the sorting of some professions of which the world wide rating was known from the sociological literature. The respondents were asked 'can you sort the given list of professions in order of occupational prestige/status.'

The scoring:

(1= highest status; 9= lowest status)

NR.	FARM	LIBR	ENGI	TEAC	JOUR	SALE	AGEN	LAWY	STEW
1	5	2	48	7	11	2	0	158	4
2	3	8	116	8	47	7	1	44	4
3	17	35	34	33	79	5	6	18	14
4	17	41	21	50	52	10	12	6	27
5	19	60	9	53	25	11	29	4	26
6	32	39	5	31	18	32	43	4	35
7	32	26	1	22	6	42	67	2	37
8	32	20	3	18	0	65	53	0	43
9	77	6	0	10	0	58	25	2	47

(1= highest status; 9= lowest status)

PROFESSION	LIB. RANK	GEN.* RANK	MEAN
Lawyer	1	1	1.7
Civil engineer	2	2	2.4
Journalist	3	4	3.5
Teacher (primary school)	4	3	5.0
Librarian	5	5	5.1
Airline stewardess	6	6	6.4
Insurance agent	7	9	6.7
Farmer	8	7/8	6.8
Traveling salesman	9	7/8	7.1

* Treiman, D.J.

Occupational prestige in comparative perspective: New York [etc.] 1977.

We can conclude that the workers in the library and information services do not have a deviant opinion in relation to the rating of the general public. How good or bad their self-image may be, it fits the common opinion the general public has of the profession. It is however the same general public of which librarians in great majority think it does not have any knowledge of the business they are involved in.

4 INTERVIEWS & COMMENTS

There were several possibilities for comments. Since the subject has been of a permanent actuality for decades, almost everyone took his or her chance to make a final comment on the troublesome situation of librarianship or stated that everything was OK but could be better. It was a verbal crusade against authorities, colleagues, students, 'the system'. There is a lot of grief among librarians. It is not possible to summarize over 800 comments (50 pages, 3200 lines) in this paper without being unfair to the countries which made contributions. There are too many local differences and particularities for a proper resume. We will present our detailed findings in the final report. Some general impressions you will find below. Another part of our investigation consisted of a series of 'depths interviews' in Latin America and South East Asia and Africa. [At this moment, early May, Africa has to be visited yet]. Ca. 70 'expert interviews' were held with different persons involved in LIS work: public and special libraries, university and academical libraries, managers of federal and national lib-

rary organizations, teachers and professors in institutes for library and information science education a.s.o.

The primary purpose of the visit was to talk to local and regional experts about the problems and/or solutions concerning status of librarianship which should result in a description of the state of the art. The second objective was to avoid cultural centrism from an European point of view in such an important and touchy matter. At both points we did meet the objectives. Most of the interviews were person to person, some of them took the form of a panel discussion. The interviews were structured with help of a extensive itemlist that was prepared on basis of the experience sofar. This was a guarantee to keep both interviewers in line with each other and themselves as well.

You find a lot of highly experienced and well educated persons, but among them many who never had any explicite thoughts about status as a problem before. Not because they were unthoughtful people, but because there were too many unfulfilled basic needs, materially speaking. Among them a lot of very elementary things like money, books, housing and the like. That does not mean problems concerning 'status' are problems of luxury. The problems concerning status, image and reputation are all over the world of the same kind. It is a matter of degree, but they do not differ in principal. Paradoxically speaking: there is no way to generalize the problems concerning status. This paradox is not restricted to regions or countries. Within one country the differences are great, nevertheless the problems are basically identical.

5 PROVISIONAL CONCLUSIONS

There seems to be some difference of opinion about the importance of the problem. In some countries for instance the libraryйsystem is growing rather fast. In such a situation status and image are minor problems. Librarians in these countries are more concerned about the development of the library system than about status and image. Some people suggested that concern about status and image are typical for a situation where there is stagnation instead of growth.

A large majority of librarians is convinced that the status is low. This can be concluded from the results of the survey and the interviews. It will be clear that a number of causes or perceived causes for the low status are interdependent. Nevertheless it seems evident that there are three main causes:

1. Invisibility
2. Education
3. Professional culture

5.1. Invisibility

The invisibility results, in the opinion of the librarians, in a lack of recognition of the general public, the clients, employers, colleagues in the office or university, authorities, government a.s.o. And the lack of recognition results in low budgets, insecurity due to political circumstances, low salaries. Of course it makes a difference to be a employee of a commercial firm in the North or working in a public library in the South, but is a matter of degree. The most often heard proposed solution was: marketing, selling the profession, PR-campaign. Among fighting librarians with a positive attitude to the possibilities to develop the profession there were several who had the intention to leave the profession because of lack of recognition as a professional and a lot of recognition as a person. Even relatively 'well paid' special librarians who sold themselves as 'crusading women'.

5.2. Education

Motivation to become a librarian is at a low level, because studying library science is second, third or last choice. The 'second choice' students are taught by incapable teachers who generate unmotivated graduates. The vicious circle: LIS studies attract second or third rate students for whom LIS is a last chance to become a graduated person. Although the entrance demands are lower than for other faculties, the number of students is smaller than the capacity of the LIS faculties. Dilemma diabolica: if you higher the demands, there will be no student left. These unmotivated and less bright students become after graduating a teacher in the same university. The inbreed and the process of selfselection is a structural problem that is perceived but not solved.

The programs of education are sometimes highly obsolete, outdated. It is much easier to start a new one adapted to the demands of society than to change old ones.

5.3. Professional culture

The library as a building with four walls containing books is the metaphore of the crisis we are dealing with. Librarians do not have the capabilities to communicate and have neglected the needs of the people they work for and the developments in society. They are heavely focussed on library technics, processing. There is a severe lack of professional leadership. And if there is, it is dependent of persons instead of 'professional culture'. Networking is the key: The quality of the services and the infrastructure is very much dependent on personal relations in certain circles, to put it euphemisticaly.

There is no longer a great demand for 'traditional' librarians. The ramification in the profession is evident. Librarians still think they are librarians (cf. engineers in the 19th century) and nowadays do not realize that librarianship is one specialism between others. They are running behind. It is not a top term anymore. They are living on a island. Slumbering struggle between the denominations in librarianship: graduates from other faculties without basic education in librarianship are taking over, and 'we' (librarians) are missing the boat, getting behind. 'Hard corporatism' is prohibitive for developing the profession. The democratization of the profession have had damaging effects. The profession have to be professionalized again. As stated before: If librarians are complaining about their status & image, they should first consider what kind of status & image they should like to have.

NOTE:

Due to the guidelines of IFLA Headquarters (deadline for the printed paper, limited space) which we cannot go beyond at, we can only present the provisional findings of the survey and a synopsis of the dozens of interviews in this printed paper. A review of the recent literature and a sociological embedding you will find in the final report to be published early next year. The deadline for this paper was at the beginning of May. A visit to Africa is scheduled at this time. In Moscow, August 1991, some new and more elaborated information will be presented. Conclusions in this paper should be considered provisional conclusions as you will understand.